COAL AGE

The Weekly Journal of the Coal and Coke Industries

Volume 17 NEW YORK, THURSDAY, JUNE 17, 1920 Number 25

Beware of the Bankrupts

EVERY time that the price of coal has to go up to meet wage increases comes the cry that the railroads, the electric companies or the gas companies cannot afford the increased price. Why cannot they afford it? Because the public in its zeal for its own profits —many of them profiteering profits—have bankrupted the public utilities. If the public would be fair to these utilities they could be fair to the coal industry. Is it not reasonable to suggest that the coal operator and mine worker would be wise to wish luck and bespeak kindly the public utility, so that when increases in the price of coal are necessary the public utility companies can pay the advance and pass it on?

Bankrupt concerns have been the cause of the pressure to keep the price of coal below or at cost. Bankrupt railroads have been successful advocates of assigned cars. Bankrupt plants have been slow to store coal. Bankruptcy in a client means bankruptcy of the merchant to whom he is client. Success in a client means success to the producer who does business with him. For this reason let the coal operator never cease to boost for the public utilities, to which division of society indeed he rightly belongs.

Geological Survey Will Inventory Coal Requirements

IN CO-OPERATION with the Council of National Defense, acting for the old Bituminous Coal Commission, the Geological Survey is making an inventory of the stocks and requirements of coal in the country as of June 1. This is the sort of investigation regularly made by the Fuel Administration during the war, which the Survey asked Congress to appropriate funds for maintaining subsequent to July 1, last. Fortunately, the remnant of the appropriation for the coal commission is available for the work this year at a time when such information is sadly needed.

The Survey has sent inquiries to a representative list of industrial consumers, public utilities, retail dealers and railroads, and from the data thus obtained will give us a comprehensive view of the stocks of coal as of June 1 and of requirements for the remainder of the year. The belief is general that the country is very short of coal, but no one can say with assurance just what is required to meet the emergency, except that it is evident that today the need is for more than the roads can transport from the mines to consumers.

It is becoming evident each week that the railroad strike and the general incapacity of the railroads are having a slowing-down effect on industry, and, as we pointed out several weeks ago, such a slowing down is reacting on the demand for coal. Consumers who must close their plants for a part of each week use less coal and have in the same measure less anxiety for supplies. An official investigation into the situation will dispel much of the present uncertainty and enable all to proceed to meet the demands of the country for coal with the dispatch the situation demands.

Will We Have Government Control of Coal Again?

THAT so many are apprehensive that this country is about to have a financial panic is good evidence, we are told by students of history, that no catastrophe will occur. So many are working to avoid trouble that their combined efforts and the warnings given will cure the trouble. So may it well be with the specter of Government-control of coal. Operators gathered last month at Atlantic City, jobbers recently at Pittsburgh, and now the retail coal dealers at Detroit have been solemnly warned by their leaders that if they do not one and all behave, the Government will again step in and dictate to them how to run their business.

There is reason for the belief and cause for the fear. The effort to frame a coal commissioner bill for action by the Senate stirred the coal trade as has nothing since the strike. We do not believe that Senator Frelinghuysen sees in his proposal as much danger to the coal industry as he sees benefit to the public. The Senator tried to get at the facts a year ago for the very helpful purpose of aiding all concerned, from the producer to the consumer. He found a vast lack of the kind of information needed for study of the problem. His proposal for a coal commissioner is to meet that lack. The coal industry sees it as an opening wedge for Federal interference with the coal business, and we have no doubt that once such a commissioner were in action there would be increasing meddling with the coal industry, not all of which would be harmful but some of which would be distasteful to coal men.

How to forestall such action by the Government and the demand for regulation by the public is troubling the leaders of coal today. No weapon is available except exhortation, for there is no legal or other means by which recalcitrant operators, jobbers or retailers can be held in line. John E. Lloyd, president of the retailers' association, told his members at Detroit to have always in mind that they serve the public and that they must have its confidence and support.

We are often reminded by the coal men that the public does not understand us, but the same man balks at letting the public learn anything about his business and never offers to tell his story to ears that are really sympathetic. The coal industry has about three months in which to educate the public to the reasons for the present coal situation. With the first cold weather the public without coal will not have patience to listen. The first move is to line up solid with your associations, next support them by money and figures, trust the leaders and hold your prices in line with reason.

Shippers Agree to Pool Lake Coal

AT THE request of the Interstate Commerce Commission the Lake shippers have voluntarily agreed to pool bituminous coal for transshipment by lake for the season of navigation of 1920, subject to rules and regulations that follow very closely those prevailing in the war year of 1918. The necessity for this action has been apparent for several weeks, and meetings were held in the first half of June that resulted in the shippers making the request that Federal support be given the movement. This action took the form of an embargo on all lake shipments except those under permit from the Ore and Coal Exchange, to head which the Interstate Commerce Commission officially appointed (without compensation) Herman Griggs, who has managed the exchange for more than two years. Rules and regulations have been agreed upon and shipments under the program began on Monday, June 14.

Lake Coal Dumped Season to June 12

(NET TONS)

	Cargo	Fuel	Total
1919.....	6,704,000	303,900	7,007,900
1920.....	2,199,000	216,600	2,415,600

No figures on car detention at Lake ports are available yet for this year, but it is certain that among the causes of low dumping have been the innumerable classifications. It is understood that no one expects pooling, which means the elimination of the majority of classifications and the speeding up of car movement, to solve the problem of getting sufficient coal up the Lakes this year. But pooling is the first necessary step and it is to the credit of the coal men that they agreed to bury their personalities in a pool, and proceed in the spirit of 1918.

National Coal Association Attacks Assigned Cars in Court

SENATOR HARDING asked the Interstate Commerce Commission to inform the Senate why there was apparent discrimination between coal operators in the matter of car supply—that is, why assigned cars were being permitted. The answer, recently given out, is a legal defense of the commission's position. The National Coal Association has announced that legal action will be instituted at once to settle once for all the right under the Transportation Act of the railroads to use assigned cars in securing fuel coal.

The reply to the Harding resolution, dated June 11, states with reference to the Transportation Act of 1920, "The act does not attempt to define in detail . . . what is a just and reasonable distribution of cars or rating of mines. The commission is authorized to determine . . . what are just and reasonable rules . . ." Futher it is pointed out that the commission can suspend such rules in any case of emergency and under the new act can establish new practices with respect to car service such "as in its opinion will best promote the service in the interest of the public and the commerce of the people."

The commission also points out that no other plan has been proposed which is workable and also preferable to the assigned car practice. It even says: "It seems not inappropriate to say that the coal operators are not able to entirely agree among themselves as to the advantages or disadvantages of the assigned-car practice." In effect the report is a defence of the assigned car rules as now practiced and gives no hint of any change so long as the commission is of the opinion that the fuel and transportation emergency continues.

Answer to the opinion of Chairman Clark of the Interstate Commerce Commission on the legal aspects of assigned cars was prompt and to the point. The National Coal Association has filed a suit against the Baltimore and Ohio R.R., with the Lamberts Run Coal Co. as plaintiff, alleging illegal discrimination in the distribution of empty cars for coal loading. The suit was filed on June 12 at Fairmont, W. Va., with hearing set for June 19. The finance committee of the National will meet this week to determine on instituting additional suits.

Steel Companies Obtain Injunction Against Trade Commission Requiring Cost Data

ON JUNE 12 Justice Bailey of the District of Columbia Supreme Court granted an injunction asked for by more than a score of steel companies, restraining the Federal Trade Commission from requiring monthly cost reports. At the same time the Trade Commission is proceeding in the New Jersey courts against certain of the steel companies in an effort to secure cost reports. It is reported that the more recent decision of Justice Bailey will not interfere with the New Jersey suit.

Coal Rate Hearings Begun

INTERSTATE Commerce Commission hearings on freight rate increases are continuing daily in Washington. Monday, June 14, was set as the date for consideration of the coal and coke rates and at that time many of the important aspects of these rates were to be covered. Not only rail rates but also coastwise rates were expected to be under discussion.

Consumers Report Stocks of Coal

MANY replies have been received by the U. S. Geological Survey in its census of stocks of coal on hand and of estimated needs. The final date for these reports was indicated in the call as June 12, but the Survey urges that all who have received forms reply even though they were not able to do so before that date. Co-operation in this is very important for all coal interests.

Will Settle Anthracite Wage Dispute

ON June 21 the Anthracite Coal Commission will meet at Washington to settle the wage controversy. The members of the commission are William O. Thompson, president of the Ohio State University; William L. Connell, a large anthracite operator of the Bernice field, and Neal J. Ferry, a member of the Executive Committee of the United Mine Workers of America.

The Anthracite Coal Commission expects on June 21 to outline its work and determine the time and place for the holding of hearings. It is likely that it will conduct these session in the anthracite field.

Retail Coal Dealers Advocate Open Shop

Annual Convention of National Retail Coal Merchants' Association at Detroit Takes Strong Position on Labor Question — Opposes Further Regulation by the Government — W. H. Williams Says Railroads Are Not Efficient — Harry Taylor Commends Support Given National Associations — John Lloyd Re-elected President

RETAIL coal dealers from nearly every state gathered at Detroit on June 10, 11, and 12 in the largest, most representative and enthusiastic gathering of coal men held this year. The sessions were characterized by earnestness of purpose and the talks and discussions were so directed at the problems of the retail dealer that no one who attended could fail to gain a larger view of the duties, responsibilities and difficulties of the retail coal dealer. The retailer is the representative of the coal industry who comes in closest touch with the public, because he is the one who meets the everyday problems of the coal-consuming householder. The keynote of this convention was service to the public—service that will put the public on the side of the coal man.

After the delegates were given a welcome to the City of Detroit by James A. Ballard, sales manager of the Semet Solvay Co., the president, John E. Lloyd, opened the convention, the third held by this association, with an address that inspired every man with the public responsibility of his calling and that set a high standard for the future activities of his associates. Service to the consumer that will gain public confidence and will bring public support for the coal man, he pointed out, is more important now than it has been at any other time in the history of the trade. Coal faces a crisis today, because we are sure to have a hard winter with plenty of trouble. The public blames the retailer when the fault is really with the railroads today. Mr. Lloyd said that if the dealers do not help to hold down prices, the Government will step in and do it for them.

"If we do not manage our business right, the Government will take it and manage it for us. A bare 5 or 10 per cent of the men in the trade can so misconduct their affairs that the whole structure will be made to suffer," was in part the warning conveyed by President Lloyd. He urged the dealers to unite more strongly than ever, to support their association by money and assistance and thereby help to regulate their own business and remove any necessity for Federal interference.

Direct shipments to consumers for domestic use, particularly through industrial plants, were opposed as uneconomic and because the replacement of a part of the regular trade of the dealer by this practice results in increasing the costs of handling the remaining tonnage and the price to the other consumers. Such forms of distribution of household coal were compared to the condemned system of rebates by railroads. Mr. Lloyd urged that the association be developed to the point where it could have a voice in legislative matters and be in position to make forceful opposition to such measures before Congress as the Coal Commissioner bill. He advocated a model Government but one that would not attempt to run the coal trade or any other industry.

A ringing declaration for the open shop, severe condemnation of the closed-shop principle and the statement that business men are too prone to discuss labor problems in hushed tones and too loath to tackle the question in characteristic American fashion brought the convention to its feet in applause. John Lloyd believes that labor can be trusted, he has confidence in the good sense and loyalty of the majority of the workingmen,

BANQUET OF NATIONAL RETAIL COAL MERCHANTS' ASSOCIATION, HOTEL STATLER, DETROIT, MICH., JUNE 11, 1920

Homer D. Jones was toastmaster and the addresses were delivered by W. R. Coyle and James Schermerhorn. Music was furnished by the Masonic Temple Chanters and Symphony Orchestra. There were more than 400 guests at the banquet.

but he deplores the kind of leadership labor has had for the last few years. He sees in the temper of the country at this time a set of laws to control labor that will be more drastic than those, such as the Sherman law, passed by Congress in the past to control capital. Labor is today using its power in a more drastic manner than capital ever did, and the reaction will be the stronger when it comes. He is not afraid to put himself and the retail dealers' association on record as ready to face the issue.

Secretary Gordon Reports a Good Year

Ellery B. Gordon, secretary-manager of the association, in his report to the convention told of the growth of the organization and the activities of the national officers during the past year. He pointed out in particular the necessity in 1919 for almost constant contact with the Federal Government at Washington, and forecast this year as one of contact with transportation interests. The office of the national association publishes a monthly paper called the *Coal Merchant*, described by Mr. Gordon as not a general news journal but one endeavoring to summarize for quick reading everything of immediate interest to the trade national in its significance. This paper carries no advertising. He commended the regular trade papers, which have a place of their own, with columns always open to the trade, and urged the support of the coal trade to the standard coal journals.

Mr. Gordon declared that the retailers' organization has one large aim—to establish a reputation for fairness—and is in the position of being willing to accept nothing less from others. To attain the position it deserves and can reach—of responsibility, influence and strength—moral support and financial assistance must be given in greater measure than heretofore. Education of the public and of the members of the trade was urged, the latter by better and more vigorous local associations.

W. H. Williams, vice president in charge of mining of the Delaware & Hudson R.R. and chairman of the board of directors of the Wabash R.R., addressed the meeting Friday morning. The feature of his talk was his description of the plight of the American railroads today and his expression of belief that they can overcome their present predicament by more efficient operation and management.

Mr. Williams' contention, supported by a volume of statistics that without effort or notes he quoted throughout his talk, is that if the railroads would this year increase the average car-miles per day to the figure reached in 1915, which was 26.9 miles per day, and would increase the average loading per car to the comparatively low figure of 71 per cent of rated capacity, a figure reached in 1916, the cumulative effect of this increase in efficiency in the use of transportation would be sufficient to meet the present needs of the country. To accomplish the same ends by investment in more cars that would be loaded and moved no faster than cars are loaded and moved today and to add motive power, labor, trackage and terminals to accommodate and handle such an increase in equipment would require from six to seven billions of dollars.

He declared that without question the solution of the transportation problem rests with the railroads themselves and with no one else. The railroads are not broken down, Mr. Williams declared, but they are not performing their functions as they should. He further pointed out that the railroad plant is not materially smaller than it was in 1917 and 1918, when vastly greater volume of traffic was handled with less effort than appears being made today.

Next winter's supply of anthracite was touched on but lightly by Mr. Williams, who said that the shipping companies are doing the best that they can to meet the orders of the retailers, but as long as it is so difficult to make delivery there will be shortage in supply at the points of consumption. Coal reserves in the ground are ample and the mine capacity is sufficient to meet our needs, but the problem this year is to get the cars of coal to the man who wants them.

He reviewed the advances made the past few years in mining methods. In the northern anthracite field machines have been successfully introduced; in the lower and thinner veins, where headroom for hand loading had to be made by taking down roof or lifting floor, loading machines are being tried out and in the preparation of fine sizes great advances have been made. Wet methods of cleaning have reduced breakage and the use of such machines as the Dorr thickener and the Deister tables has permitted the preparation of fine coal much lower in ash than any heretofore obtained.

Embargo Would Afford Temporary Relief

But temporary relief would be afforded the country by the proposed 90-day embargo on exports of coal from the Atlantic seaboard, declared Harry N. Taylor, in answer to inquiries from the floor of the convention, following his address. The immediate result would be lowering of prices of those coals that are now being shipped abroad, but at the expiration of the proposed 90-day limit conditions would be far worse than now, and Europe needs the coal. He further stated that with the present short running time many mines are showing a deficit in their operation, and with labor getting the highest wages ever offered coal-mine labor relief stations in the coal fields today must assist the needy miner who is denied the opportunity to work because there are no railroad cars in which to load the coal.

Despite the fact that wages are the highest and prices beyond reason, both miners and operators are realizing the smallest profit they have had for several years. Bearing out the statements of Mr. W. H. Williams in a previous address, Mr. Taylor said that whereas cars of coal in 1918 had been moved from the mines in the Kansas field to Kansas City and the empties returned in four days, the same round trip now requires twelve and a half days. There is enough railroad equipment in the country today, if put in repair and properly used, to meet the transportation requirements of the country.

In answer to an inquiry regarding the Lake situation, Mr. Taylor said that there is no question but that the Northwest will be short of coal this year, but that even if there was a larger supply on hand it could not be moved off the docks to consumers because of a lack of railroad equipment. The result this winter will be that a tremendous load will be thrown on the coal fields in Illinois that can reach the Northwest by all rail routes.

Resizing of anthracite, trade relations, cost accounting, Governmental relations and transportation were the subjects of special committee reports.

Indiana Operating Problems as Illustrated By the Black Betty Mine

Keen Competition and an Exacting Trade Make Close Sizing and Careful Preparation Necessary—Roof Scales Badly, Keeping Roads Covered with Rock Dust—Coal Bed Being Dry and Level, Rooms Are Driven in Opposing Directions

BY DONALD J. BAKER
Pittsburgh, Pa.

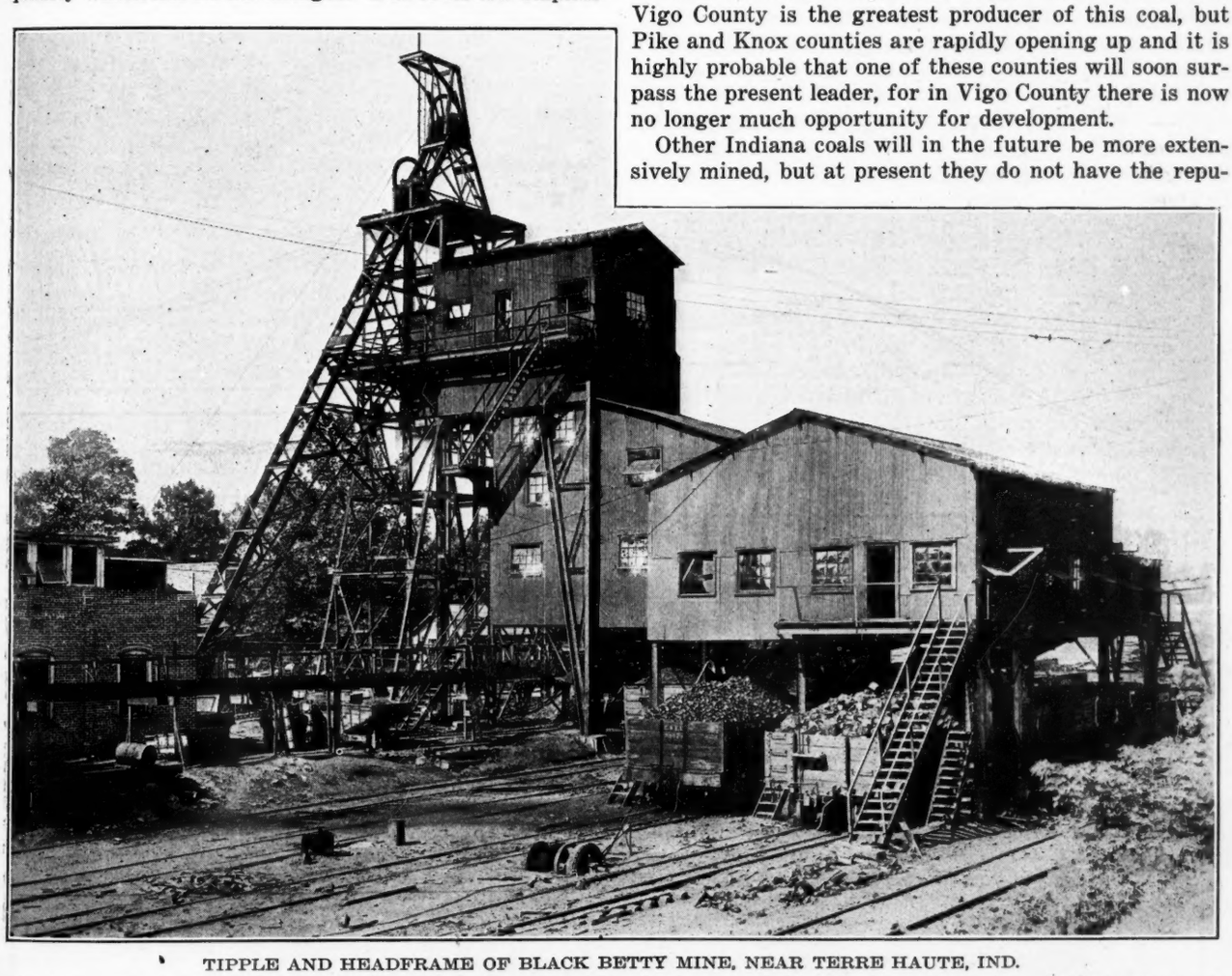
COALS from every section have each a degree of individuality in appearance that they can readily be recognized by the local expert. Not less marked a characteristic of each is its specific action in the furnace. In consequence of this individuality each finds its appropriate uses and each needs grate settings suited to its characteristics.

"Indiana Lump" is a coal of marked individuality. There is no question mark to be put after the word "lump" such as one would be disposed to put after the large coal from some other districts. It is a coal well suited to domestic use, while its slack has a non-caking quality which has its advantages. Due to its low-sulphur content it is peculiarly adapted to steel making and the ceramic industries. It is free burning, contains little sulphur as compared with coals from the other beds and leaves but a small amount of ash. An analysis of the No. 4 coal will show approximately the following constituents: Fixed carbon, 41.19; volatile matter, 37.80; ash, 7.05; moisture, 13.96; sulphur, 1.12. The heat content averages about 12,000 B.t.u.

SIX DEPOSITS IN WESTERN INDIANA

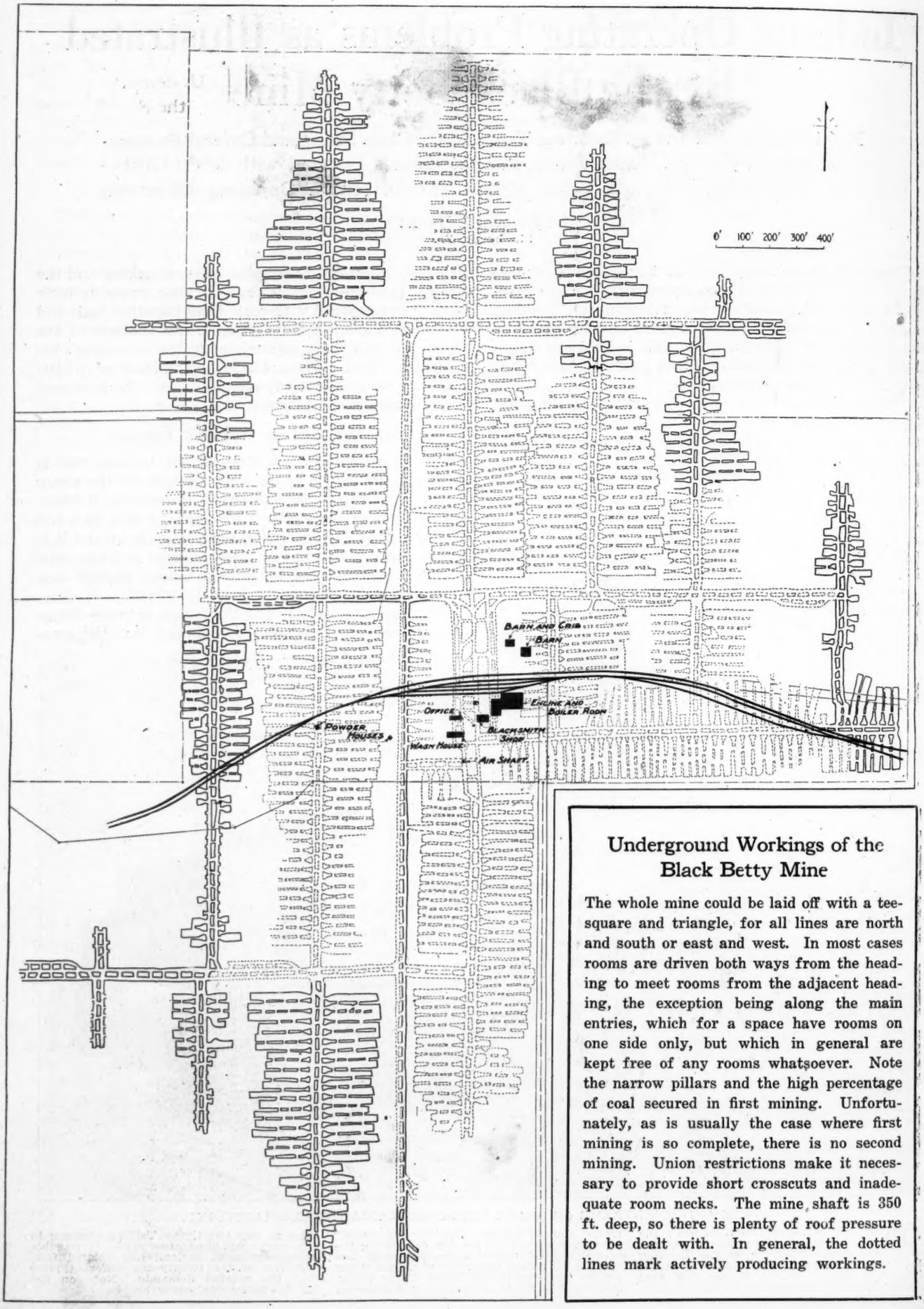
Notable among the varieties of the Indiana coal is the No. 4 bed, which is the most valuable of the group of the six distinct deposits found in western Indiana. Vigo County is the greatest producer of this coal, but Pike and Knox counties are rapidly opening up and it is highly probable that one of these counties will soon surpass the present leader, for in Vigo County there is now no longer much opportunity for development.

Other Indiana coals will in the future be more extensively mined, but at present they do not have the repu-



TIPPLE AND HEADFRAME OF BLACK BETTY MINE, NEAR TERRE HAUTE, IND.

Headframes in the Middle West are made lighter than in the Eastern mining regions, doubtless because the air in the hoisting shaft is not so humid and corrosive in the former instance. Owing to the fact that timber has to be brought in from some distance the Mid-West tipples are nearly always of steel, thus greatly decreasing the probability of fire and making more accessible all points under the structure. Four tracks pass under the Black Betty tipple, making it possible to load that number of sizes at any one time. Trifling changes in the screening apparatus make it possible at any moment to load any related four varieties of the twenty-one different sizes that the market demands. Note on the left the boiler-coal conveyor.



Underground Workings of the Black Betty Mine

The whole mine could be laid off with a tee-square and triangle, for all lines are north and south or east and west. In most cases rooms are driven both ways from the heading to meet rooms from the adjacent heading, the exception being along the main entries, which for a space have rooms on one side only, but which in general are kept free of any rooms whatsoever. Note the narrow pillars and the high percentage of coal secured in first mining. Unfortunately, as is usually the case where first mining is so complete, there is no second mining. Union restrictions make it necessary to provide short crosscuts and inadequate room necks. The mine shaft is 350 ft. deep, so there is plenty of roof pressure to be dealt with. In general, the dotted lines mark actively producing workings.

Undercutting the Seam

There being no marked cleating in the coal, the rooms are driven regardless of the structure of the bed but in rigid accord with mine layout. The bottom is a hard rock.

tation that the No. 4 bed enjoys. The fact that it is now impossible to purchase any acreage in the No. 4 bed testifies to its value and popularity with the consumer.

Located about 12 miles from Terre Haute and situated at a low point in the rolling country of the Wabash Valley is a representative mine that is developing a 1,000-acre tract of the No. 4 bed. This is the Black Betty operation of the Zimmerman Coal Co. This firm broke ground for its plant in December of 1916 and the following year began operations, sinking a 350-ft. concrete-lined main hoisting shaft.

Flooded with Water and Filled with Débris

Scarcely had the work of driving the main haulage entries from each side of the bottom been started, when a "cloudburst" occurred and filled the entire excavation with water and débris. For a considerable distance on either side of the bottom the roof came down as high as 35 feet.

The outlook for the eventual opening of the mine at this period was indeed dark. There is little question but that it would have been cheaper to have sunk a new shaft and begun all over again; however, there was no location on the tract that offered the same advantages for developing the coal. Accordingly the water was pumped from the opening and the best made of an unfortunate circumstance.

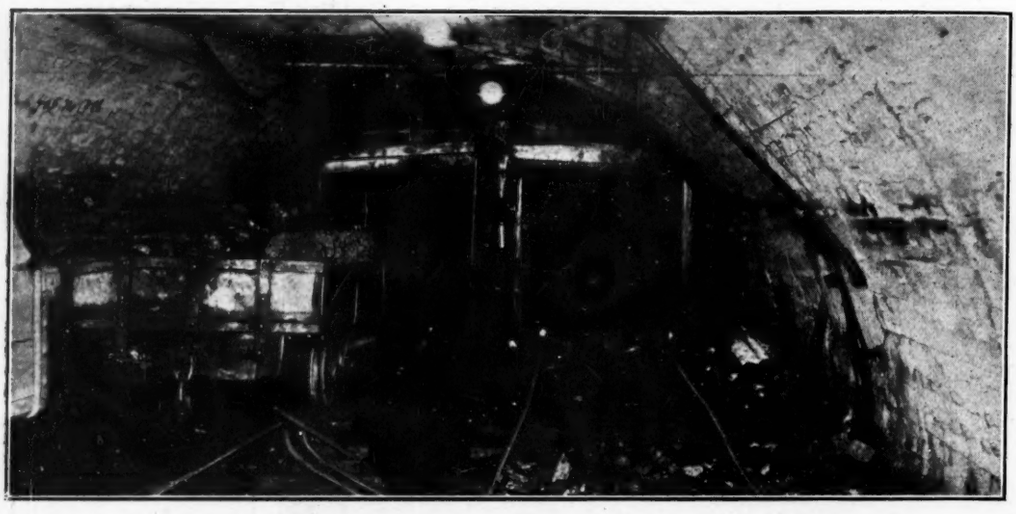
Heading Utilized for Haulage Purposes

Fortunately, the cave did not extend over the parallel aircourse heading, and in order that the work of developing the mine might not suffer this heading was utilized for haulage purposes while the construction of a brick archway over the caved regions progressed. This archway, which is shown in one of the illustrations, was built of paving blocks made three blocks thick. It was constructed in 10-ft. lengths, each of which is 10 ft. high.

As each section was completed the débris ahead of the next section was placed above the finished arch to act as a cushion in resisting any future falls. The completed archway extends for a distance of 350 ft. upon one side of the bottom and 100 ft. on the other side. The longer portion of the arched way spans the loaded storage tracks, which are on a 1½ per cent grade. This

This is "Indiana Lump"

Free-burning, non coking and low in sulphur, the coal from No. 4 bed finds favored place in steel smelting, ceramic work and steam raising wholly aside from its recognized value as a domestic fuel.



Landing at Black Betty

In the early days of development Black Betty filled with water and débris and the landing caved till the heading roof was 35 ft. above the old floor. The landing had to be arched and the débris was piled as back filling over the archway as fast as the arch was constructed.

inclination permits the cars to run by gravity to an automatic caging device, which feeds them to the cages.

The opposite, or south, side of the shaft accommodates the empty cars as they leave the cage. The grade on these tracks is, of course, in favor of the empty cars and they are here made into trips before being removed by locomotives. As most of the development today is on the north side of the shaft, the trips pass along a heading that is parallel to the loaded storage tracks and emerge onto the main haulageway at a point directly north of the end of the archway.

Twelve-Foot Room Pillars Are Never Drawn

The method of developing the mine is a variation of the triple-entry system, with a panel scheme applied to the working of the rooms. All entries, including main haulageways, are single tracked. A parallel heading serves as the aircourse. In the accompanying mine map it will be noticed that the mine was laid out to square with the points of the compass. As a result, the north and south sections of the mine are reached through true north and south main haulageways. Sub-entries running due east and west are driven every 1,320 ft. off these. From these sub-entries and at right angles to them room headings are driven every 450 ft. Thus a block of coal 1,320 x 900 ft. constitutes a panel and is developed by rooms 200 ft. long. The coal seam is 5 ft. 2-in. thick.

Except for a few local depressions No. 4 bed is practically level and rooms are driven from both sides of the entries. This is possible in a mine that is unusually dry and where the bed has no dip. Furthermore the mining law of the state permits ventilating this entire mine with two splits.

As fast as each panel is worked out it is sealed off and abandoned. Some gas is encountered in development, this being chiefly apparent immediately after the shooting of the coal. While open lamps are used throughout the mine, some gas is generated when the roof falls in the worked-out panels, and great care must be used in sealing off such workings.

The room pillars are 12 ft. thick, the roof over the coal at the time of its removal being quite reliable and the coal being strong. No attempt is made to draw these pillars and much good coal is thus lost by reason of the sealing off of the panels when the rooms have been carried to their full length. The coal thus abandoned approaches 40 per cent of that available.

In this section of the country the temptation to mine in the easiest possible manner is strong and it has resulted not only in leaving coal in the seam operated but in leaving undeveloped and unmined two other workable and valuable beds on this same property. No. 5 bed overlies No. 4 by some 100 ft. and No. 3 underlies it at an interval of 120 ft. Separated by such intervals, in the opinion of most people, No. 5 coal should be removed first, provided, of course, that all the beds were not to be operated concurrently. No. 4 coal could then be removed and there would then be some assurance that the floor and roof of each bed would present their natural resistance to crushing.

There is no drainage problem at this mine and the only water encountered is that which finds its way down the shaft. The floor of the coal is a firm sandstone. The roof is a sandy shale with some lime in it. Because of the dryness of the overlying seams this roof is quite firm when first exposed. In the winter months, when the circulating air is cool, no trouble is experienced; but during the summer the warm air which enters is chilled and moisture condenses in small globules on the roof. The action of the water on the lime is immediate and the roof starts to slack and flake off. No great amount of trouble is caused through this seasonal activity in the roof, and no measures have been taken in this mine to combat it. In other localities, however, a cement gun has been used advantageously.

Mine Uses Direct Current Exclusively

The coal is cut by a Goodman shortwall mining machine and though this bed is harder than the Pittsburgh, no difficulty is encountered. Two-ton mine cars are used and mule haulage is employed within the rooms and along the room entries that are connected with the east and west headings. The locomotives are of the trolley type and operate on direct current. Incidentally only direct current is used both within the mine and around the surface plant.

Quite a number of the mines situated in the Wabash Valley purchase their power from the high-tension lines of the Terre Haute, Indianapolis & Eastern Traction Co., but inasmuch as the initial cost of constructing a transmission line from the nearest point appeared prohibitive, a power plant was built at this operation. The building is of brick construction, the roof being supported by steel and wooden trusses on brick columns. A brick partition divides the boiler from the engine room.

This latter also houses the hoisting engine. This building is situated adjacent to the tipple and is floored throughout with cement.

Spare Power Unit Seldom Needed

The main generating unit is a 22 x 25-in. Chuse non-releasing corliss engine direct connected to a 300-kw. 550-volt Westinghouse direct-current generator, a 450-hp. Skinner engine that drives a 200-kw. 550-volt Westinghouse generator by direct connection being installed as a spare unit. This latter generating set is seldom used as the first mentioned unit supplies ample power. The hoist engine is of Lane & Bodley manufacture. The drum is 9 ft. in diameter and winds a 1⅛-in. cable. The cylinders of the driving engine are 24 x 42 in. in size, and the machine is equipped with a steam brake and a steam-operated reverse. A 10-in. steam line from the adjacent boiler room supplies all units in the engine room.

The boiler room houses five 150-hp. Frost boilers, each of which is equipped with hand shakers. The boilers are hand-fired with screenings. These are conveyed direct from the tipple to the floor by a button conveyor. The ashes are removed to a nearby dump by a steam jet which drives them through an 8-in. pipe line laid beneath the boiler-room floor. There are separate steam lines to both blacksmith shop and fan house, operation of these units being thus independent of the engine room.

Water for the boilers is secured from a small reservoir located near the surface buildings. This is fed from a large reservoir that is located at some distance from the mine. From the auxiliary reservoir the water flows by gravity to a cistern at the boiler house, whence it passes to the boilers through a feed-water heater.

The tipple was designed, fabricated and erected by the Wisconsin Bridge & Iron Co., the Eagle Iron Works of Terre Haute supplying all the interior equipment. The apparatus for preparing the coal is elaborate and was designed and installed with the purpose in view of pleasing a discriminating trade.

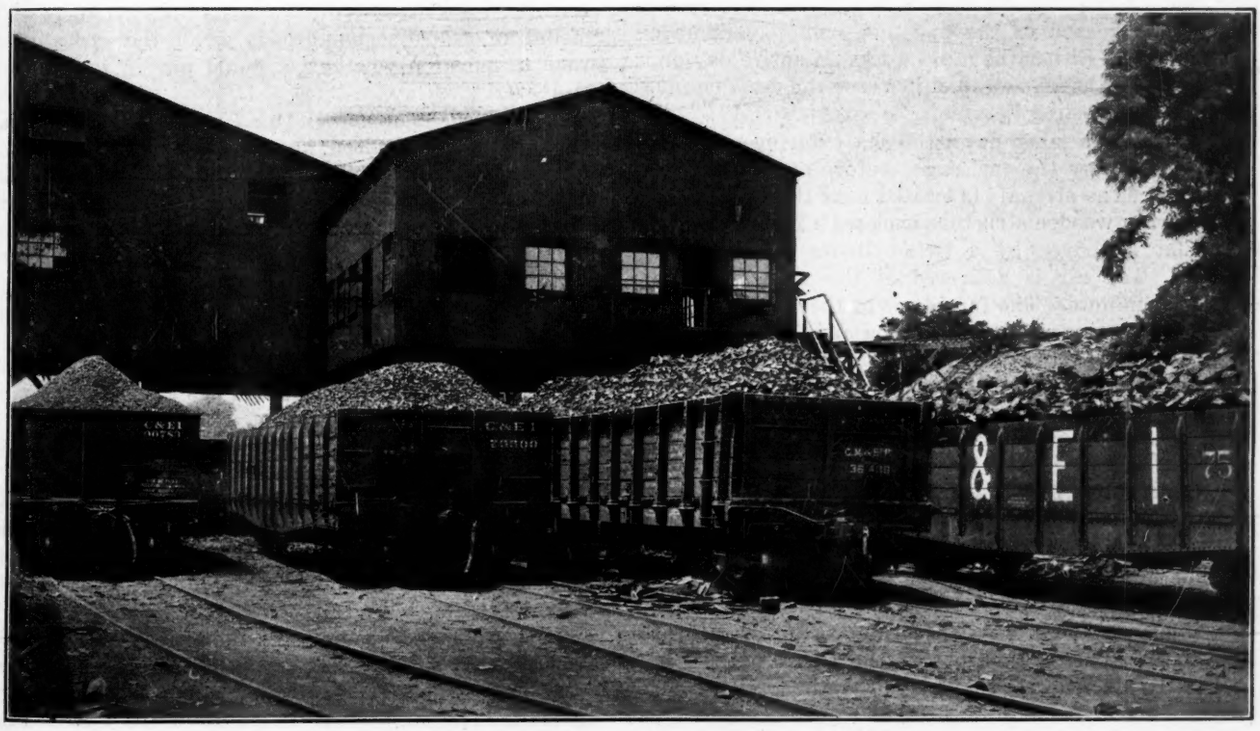
In fact there are in all twenty-one sizes prepared, as occasion demands, four of which can be loaded at any one time. These sizes vary from slack to a 6-in. lump and range through variations of pea sizes that run from ¼-in. to 1-in., thence through a nut size up to 2½-in. and lastly egg up to 6-in.

Why, it will be asked, should such a range of sizes be prepared? And is each of the different sizes actually made? The latter query may be answered in the affirmative, although many sizes are quite uncommon. In answering the first question it may be said that, owing to the keenness of competition in the Indiana field, the sales representative of a company that is not prepared to furnish any required size of cleaned coal finds himself under no small handicap.

Loading Booms Are Used as Picking Tables

The tipple building is a steel frame with corrugated iron siding, while the headframe is of structural-steel construction. The cars as they come to the head of the tipple discharge their contents into a weigh basket, after which it passes into a hopper and is thence fed to a short apron conveyor. From the conveyor the coal passes over 30-ft. shaker screens. The different sizes are secured by changing the plates and employing those that contain the desired size of perforation.

Three loading booms and a slack chute permit four different sizes to be loaded at one time. From the end of the shaker screens the large lump enters one loading boom while the smaller sizes are distributed to two others. The slack travels by gravity to a chute beneath



LOOKING EASTWARD AT THE BLACK BETTY TIPPLE

On the right can be seen the small rock dump or, rather, bank. The coal being 62 in. thick, there is no need for room rock to be brought to the surface, but, as the lime in the roof causes it to scale whenever the damp and warm air entering the cool mine condenses on it, rock falls occur in the heading, and have to be removed. But the dumps are not as pretentious and costly as in some sections, where the rock handling in trips and on the dump makes an additional charge to the cost of deadwork. the importance of which is not always fully realized by those even who face these difficulties from which others are exempt.

the screens and is loaded without a boom. All the booms are used as picking tables as well as conveyors. Platforms have been constructed along the side of each, and here three men are stationed. Thus the coal is thoroughly cleaned before it enters the car.

No. 4 bed is mined unusually clean by reason of the firm floor, and no great amount of refuse is discovered in the tipple. All of the equipment within this structure is electrically driven from motors operating on direct current. In case the power is temporarily off at the power plant, the coal may be dumped over gravity screens beneath the shakers and loaded either as run-of-mine or as 1¼-in. lump and slack.

While the hoisting engine and the tipple were designed to accommodate a capacity of 3,000 tons in 8 hr., this figure is rarely attained. Perhaps 2,000 tons would be a fair average, although 2,500 tons have been loaded with ease when the cars were available. Car shortage has dealt this mine a severe blow, as it has many others in the Indiana field.

The mines in Vigo County are utilizing motor trucks in many cases to deliver domestic fuel. In this manner the shortage of railroad cars is alleviated. Hauls up to thirty miles are not uncommon and in this way the domestic and manufacturing needs of the surrounding industrial district may be filled. However, coal from the plant described is seldom delivered by truck and today it is operating at less than 50 per cent of capacity. This feature of intermittent operation is extremely trying.

No Housing Accommodations Provided

Houses for accommodating the men have not been built at this mine and as a result most of the employees live either in Terre Haute or Clinton and take a train to the plant. While the car allotment is less than 50 per cent of normal, production is further made more difficult by reason of the men not being available on short notice. Either the mine works an entire day or it does not work at all, and in either case the decision must be made the evening before.

Materials are taken down the shaft during odd times and the men use the coal cages before and after working hours. The airshaft is located near the tipple. Here a temporary wooden structure encloses a 20-ft. reversible fan that is driven by a twin-cylinder Bullock steam engine. The air is delivered at the rate of 217,000 cu.ft. per minute. The fan is one of the most important units of the surface equipment because the circulation of air must be always sufficient to immediately sweep away any gases that may escape from the abandoned panels. Some gas is encountered during the shooting of the coal and burning feeders are not uncommon. As a result, the firebosses must at all times be unusually vigilant. A few fires have occurred from these feeders; none, however, has been of serious consequence.

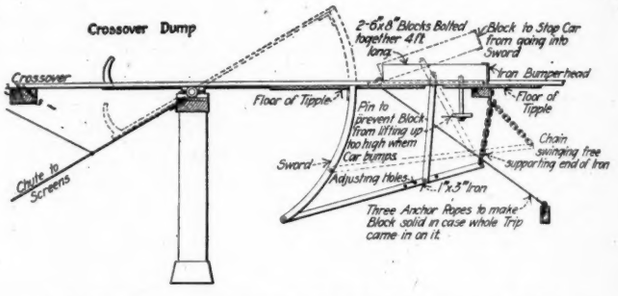
In a mine of this character that is exceedingly dry the possibilities of a dust explosion might appear to be considerable, but the action of the air on the roof during the summer months has caused a covering of rock dust to be deposited on the floor of the entries and this is believed sufficient to guard against the occurrence of any such accident. Mine fires and dust explosions are uncommon in the Indiana field despite what appears as a natural setting for such accidents. The dust along the entries at Black Betty is sprayed frequently from a water tank that is mounted on a mine truck.

Other surface and underground units at this operation do not differ markedly from those found at plants in western Pennsylvania. There is a motor-repair shop underground where locomotives and cars may be given light repairs or those of a nature that do not necessitate the removal of the equipment to the surface. Above ground there is the typical combination shop. For the operation of drills, lathes and other machines located in this building an engine is provided which operates a long shaft, and from this the various machine tools are driven by belt connection.

Automatic Car Stop for Crossover Dumps Prevents Breakage and Shutdowns

By G. E. Daugherty
Pikeville, Ky.

Most mining men are familiar with the damage and delay that result from running a car or trip into an upended dump. Of course, such accidents do not occur when an automatic car feeder is employed which functions properly. Unfortunately, however, such devices as a rule are expensive and where the


Crossover Dump
2-6"x8" Blocks Bolted together 4 ft. long
Block to Stop Car from going into Sword
Crossover
Iron Bumperhead
Floor of Tipple
Floor of Tipple
Pin to prevent Block from lifting up too high when Car bumps
Chain swinging free supporting end of Iron
Sword
Adjusting Holes
1"x3" Iron
Chute to Screens
Three Anchor Pipes to make Block solid in case whole Trip came in on it

DIAGRAMMATIC VIEW OF THE DUMP AND STOP

amount of material handled is small the operator is prone to question whether it would pay to introduce a car feeder.

G. C. Wood, manager of the Tierney Mining Co., of Stone, Ky., has devised an attachment for crossover dumps that is intended automatically to prevent a car from running into the dump sword. This is in reality a bumping block that rises when the dump end goes up and drops back into place when the dump returns to its normal position. This attachment is shown in the accompanying illustration. Since it has been in operation at the mines of the above-named company it has frequently prevented the dump to which it was attached from being damaged and has saved the running of the mine from interruption.

Nova Scotia Men Demand Electric Lamps

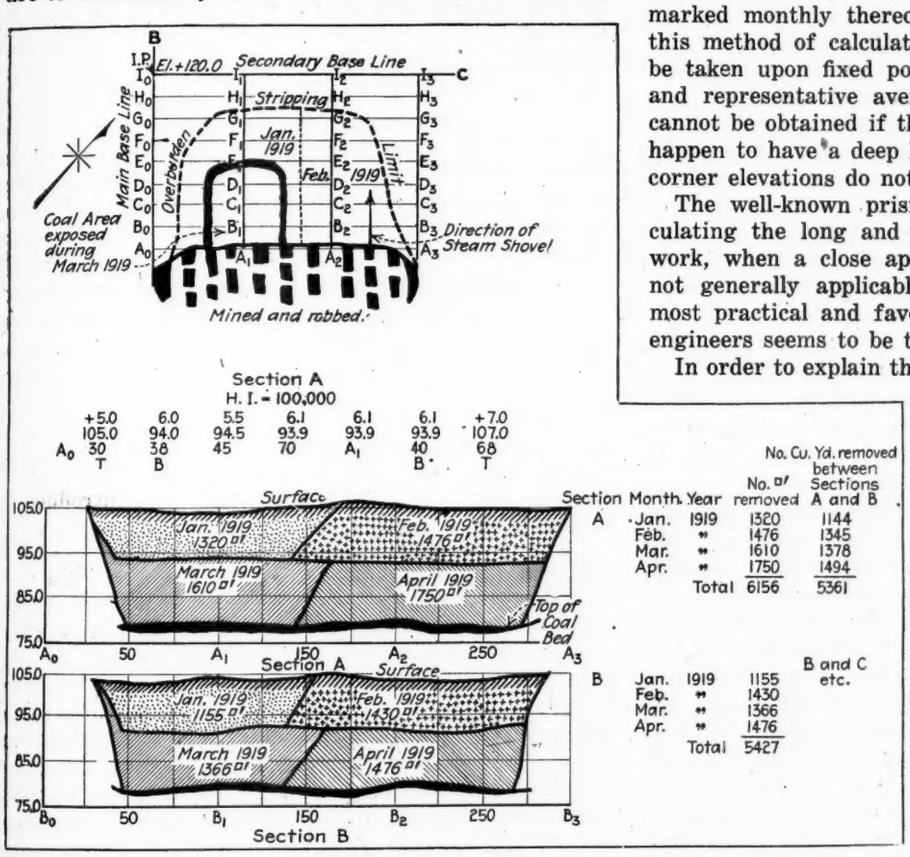
Mine workers in Nova Scotia are protesting against the continued use of the flame safety lamp. The men claim that not only would the air be purer and the work more safely performed if electric lamps were in use, but that the company would benefit also, for the output would be increased by the better light, the mine worker being better able to go about his work if so favored. The matter was taken up at the Phalen local, and the men charged that the coal company, which had promised to look into the matter, had been overlong in reaching a decision. They threaten a strike if nothing is done to replace their present lamp equipment.

Estimation of Quantities Removed in the Stripping of Anthracite*

Estimating Overburden Removed Is a Monthly Operation Devolving Upon the Engineer — Three Methods, the Square, Prismoidal and Average-End, May Be Employed for Calculating the Extent of Excavations, but the Latter Usually Is Preferred

By THOMAS F. KENNEDY
Scranton, Pa.

HAVING determined on paper the economic limit of any stripping proposition the next important step is to decide upon the method by which the overburden is to be removed. This must be known in advance if monthly estimates of the overburden handled are to be efficiently made. In connection with the foregoing statement it is pertinent to remark that the method for calculating the excavation also must be decided by the engineer as it may or may not be adversely affected by the plan of removal.



Section	Month	Year	No. cu. yd. removed	No. cu. yd. removed between Sections A and B
A	Jan.	1919	1320	1144
	Feb.	"	1476	1345
	Mar.	"	1610	1378
	Apr.	"	1750	1494
	Total		6156	5361
B	Jan.	1919	1155	B and C etc.
	Feb.	"	1430	
	Mar.	"	1366	
	Apr.	"	1476	
	Total		5427	

Sample Stripping Summary

Showing Plan of Area to be Stripped, Cross Section of Stripping Operations and Notes on Yardage Removed per Month.

Several good and practical methods have been planned for the estimation of the overburden removed. These include the square, prismoidal and average-end formulæ. In the application of the square method the surface of the proposed stripping is staked out in 20- or 25-ft. squares, and elevations are taken at each corner. After excavation the elevations are again taken at the same points and the volume of earth removed from each "square" is calculated by multiplying the average of the four depths by the area of the "square." The total volume removed is then the sum of the volumes of all the excavated squares.

As a rule a plan is provided only when the square method is used, the elevation of each corner being marked monthly thereon. The chief disadvantage of this method of calculation is that the elevations must be taken upon fixed points or corners, so that a true and representative average cut over the square area cannot be obtained if the interior of the square should happen to have a deep hole or high point in which the corner elevations do not partake.

The well-known prismoidal formula is used in calculating the long and narrow cuts found in railroad work, when a close approximation is required. It is not generally applicable to stripping problems. The most practical and favorite method used by stripping engineers seems to be the average-end formula.

In order to explain the application of this formula, as applied to monthly estimates, a typical problem will be assumed as shown in the accompanying sketches. By referring to the plan, let it be supposed that a stripping has been projected beyond a mined-out and robbed area, and that after an exhaustive study of the problem involving the staking out of the economic stripping limit the engineer has decided that the steam shovel will work most efficiently in a northwesterly direction. The question of cross-sectioning the proposed stripping is next in order.

In order to arrive at the most probable volume of the overburden removed it is necessary to have as many sections as possible, since the greater the number of sections the smaller is the probable error. It can be easily seen, therefore, that the greatest number of sections can be obtained by running the profiles perpen-

*A series of five articles by the same author entitled "Anthracite Coal Strippings," was printed in *Coal Age*, beginning Oct. 3, 1918. The series was interrupted by the fact that the author joined the army. Article V of the series was actually written in camp.

dicular to the path of the shovel, as shown on the plan. This may not be true when a steam shovel is making short cuts perpendicular to the greater dimension of a stripping, but when possible it is advisable to have the shovel operate parallel to the longer sides of the stripping so as to avoid shifting the machine, which means additional expense to the contractor.

Generally, a main base line with a secondary reference line is laid out and section lines A_0—A_2, B_0—B_2, etc., are run every 20 or 25 ft. with stout wooden stakes placed every 100 ft. at points A_0, A_1, A_2, A_3, B_0, B_1, etc. The method is delineated upon the plan of the proposed stripping and the base and section lines are then staked out in the field. The stakes marking the overburden stripping limit are likewise placed and the elevations of the cross-sections are then taken.

With one set-up it is advisable to take all possible elevations on all decided breaks, being careful to run all points on each line separately. In order to reduce all possible errors to a minimum, the number of set-ups should be as few as possible. An iron pin 3 ft. long and 1½ in. in diameter, located a safe distance from the proposed stripping, should be used as a permanent bench mark. To check work ties should be run.

After all data concerning the elevations of the cross-sections have been collected the information is plotted upon cross-section paper to some convenient scale, as 1 in. to 10 ft., both vertically and horizontally, the scale depending upon the magnitude of the work, but as a rule the foregoing scale is generally used. The scales employed in the accompanying cross-sections are adopted for illustrative purposes only.

Wooden Stakes or Rock Slabs to Mark Points

Referring to the plan and cross-sections, sections "A" and "B", showing the surface line, are plotted with the position of the bed previously determined from information that has been gathered from boreholes. It will be further assumed that the steam shovel began operation in January, 1919, and finished the removal of the overburden after four months of activity. In order to calculate the amount of overburden removed during January, the following method is proposed: After the January cut has been made the 100 ft. points as A_1, A_2, B_1, B_2, etc., or points whose locations have been destroyed by the shovel operations, should be re-established and properly marked. Wooden stakes or even flat rock slabs may be used in establishing the identity of each point. The use of the flat slabs as markers is practicable and economical and by their adoption speed in estimating the yardage removed is obtained; moreover, wooden stakes are as a rule disturbed and sometimes removed during the activities of the stripping operation and must be replaced, so the use of small flat slabs is advisable.

After the 100-ft. points have been re-established the elevations on the cross-sections are taken, one man running the level or transit and taking the notes while two assistants handle the tape and level rod. For measuring distances from the reference points a 100-ft. steel tape may be employed. It gives good results as far as precision and speed are concerned. The transit which must be used in re-establishing the cross-section points can be and usually is employed in place of a level for taking the elevations, while a 7-ft. level rod, a small hand or Locke level, a few plumb bobs and a notebook, etc., make up the rest of the necessary equipment.

In keeping the notes, each transitman has his own methods and short cuts, but in general there are two systems, which I term respectively "vertical" and "horizontal." In the vertical system the points are recorded vertically in the first column on the left page of the notebook, while in the next column the back-sight readings are placed. Then follow in order the height of instrument, the fore-sight readings on the points and then finally the calculated elevations. In order to show additional information and assist the draftsman in plotting, a sketch drawn upon the right-hand page usually accompanies the notes.

In the horizontal method the left page of the notebook is used to carry the elevations, such as bench mark, turning points, heights of instruments and connections, while on the opposite page a set of notes, as shown by section "A", is kept. By studying the form of notes shown by the foregoing section, the height of instrument, which is assumed to be 100, is first recorded, while point A_0 is next noted, but as the cut does not involve this point, no elevation is determined; the distance from point A_0 to the top of the cut, 30 feet in this particular case, is next measured and a "zero" reading of plus 5 is obtained by holding the bottom of the level rod in the same horizontal plane of the line of collimation of the transit. The plus elevation to the nearest tenth is then recorded, while the rodman moves to the next point, which is shown to be the bottom of the cut, when a reading is taken and the distance from A_0 measured.

The foregoing operation is followed out on the section line until the transitman has secured all the necessary information on that particular cut that can be obtained from a single set-up; then the same procedure is carried out on the remaining sections. The letters "T" and "B", indicating top and bottom of cut, placed below the reference distances may be used in assisting the draftsman in plotting. The location of each point on each section line should be determined by measuring the distance from each lettered point used as a base.

Planimeter Method Found Practicable

After sections are plotted the areas are found, preferably by the planimeter, although this result can be determined by dividing the plotted area into triangles, squares, trapezoids, rectangles, etc., and finding the summation of each individual area. The planimeter method is more practicable and economical. After determining the area of each sectional cut, the monthly cut should be tinted with water color, using the same tint for the same month on the different sections, which idea is shown in a conventional manner upon the accompanying cross-cestions. In addition the month, year and number of square feet of cross-section in the excavation removed should be letetred upon the tinted area. Likewise a different color for the next succeeding month should be used.

To show the progress of the stripping, boundary lines describing both the area of overburden excavated and of the coal area exposed should be delineated monthly upon the plan.

To find the amount of overburden removed, the average-end formula is then applied: for example, in calculating the cubical contents between sections A and B for the month of January, the average of the area on both sections is multiplied by the sectional interval, which is in this case 25 ft. Using the different end

areas between the different sections, the amounts removed between the various sections can be calculated. The total amount removed is the summation of the sectional quantities.

In order to keep a record of the quantities removed a good scheme is to tabulate the results as shown with the accompanying cross-sections. The last column shows the sectional yardage for each month and also the total contents removed between particular sections when stripping is finished.

If the superimposed overburden is composed of clay and hard rock, which in some cases is to be estimated separately, the elevations should be run at the proper time and the line of demarcation shown upon the plotted cross-sections.

The number of cars removed by the contractor, allowing for a certain percentage of swelling, will furnish information by which the number of cubic yards of overburden may be checked. In calculating the final volume removed the total area on each section should be run and verified, making an allowance for cleaning the top of the coal. Above all good judgment and common sense should be used in making the final estimate of the work done at any stripping operation.

Roads Mulcted for Excess Profits on Maintenance and Betterments

W. Jett Lauck Says Continuance of Recent Profiteering Will Cost Railways a Billion Dollars Additional During Next Three Years

THAT profiteering in coal, petroleum, steel and steel products has cost the railroads of the United States at least $600,000,000 during the last three years and, unless checked, will cost them more than $1,000,000,000 additional during the years of 1920, 1921 and 1922 is the crux of a supplementary report by W. Jett Lauck, consulting economist for the railroad labor organizations, transmitted to the Railroad Labor Board.

"Next to wage earners, the salaried class and people of fixed incomes, the railroads have been the greatest victims of the profiteers," says this report, "and the most serious aspect of this phase of the profiteering problem is that it means a fixed charge upon the public of millions of dollars annually for all time to come, for if the railroads are mulcted of a billion dollars in undue profits in the expenditures for maintenance and betterments during the ensuing three years, that amount necessarily becomes a part of the capital investment upon which the public must pay a fair return.

"In this connection it should be stated that if the railroads were protected against the profiteers, reasonable and necessary advances could be made in the wages of railway workers without material increases in transportation rates, and attention may be also called to the fact that in such legal steps as have been taken to punish or restrain profiteering not a move has been made against the profiteers in steel and steel products, coal, petroleum and railroad equipment and supplies."

The Lauck report fixes 12 per cent as the profiteering tribute which the railroads have paid to the producers of coal, petroleum, steel and steel products, car and locomotive manufacturers and others.

"This figure has been arrived at," states Mr. Lauck, "only after the most thorough and painstaking analysis of railroad expenditures and the profits of the corporations from which they buy. For instance, during the three years of 1917, 1918 and 1919 the railroads of the country combined bought 451,113,935 tons of coal at a total cost of $1,225,610,793. The companies from which this coal was purchased made an average profit of 52.6c. per ton, or $237,179,652, after paying all taxes and other charges. A survey previously made shows the average net profit of coal companies for the pre-war years to have been 21c. per ton, which would have netted them $94,733,926 in profits upon this tonnage. The amount of profiteering in coal for the three years, therefore, is ascertained by deducting the normal profit from that actually taken, which adduces an excess profit of $142,445,726 in coal alone, or practically 12 per cent.

"During the three years mentioned the railroads bought 4,508,213 tons of rails at an average price of $45.19 per ton, on which the steel companies made net profits of at least $11. For a great man years before the war steel rails had sold at exactly $28 per ton, on which the manufacturers realized about $4.69 in net profits, after paying interest and other charges. The total excess profit on this one item for the three years amounts to approximately $30,000,000, or more than 14 per cent of the cost."

Comparatively little money was spent by the transportation companies for extensions, improvements or new equipment during the period 1917-1919. The total was slightly more than $2,000,000,000, about $1,000,000,000 of which was for materials. Operating expenses, including salaries and wages, were approximately $10,000,000,000, about 40 per cent of which, or $4,000,000,000, was spent for fuel, supplies and equipment. The total expenditure for commodities was, therefore, about $5,000,000,000, 12 per cent of which, or $600,000,000, went into excess profits.

"A very exhaustive analysis of the amount needed for the rehabilitation of the railroads during the coming three years made by experts for the *Railway Age* estimates that, in all, $6,000,000,000 should be spent for new equipment, extensions, additional lines, grade revisions, buildings, and so forth. About one-half of this amount will go to purchase cars and locomotives. Of the remaining $3,000,000,000, it may be assumed that at least 50 per cent will be paid for materials, making a total of $4,500,000,000 of capital expenditure for commodities. Assuming that operating expenses remain the same as in 1918, another $4,500,000,000 will be expended for materials and supplies, a grand total of $9,000,000,000. And also assuming that the ratio of profiteering does not increase, it is easy to see that something over $1,000,000,000 will go into excess profits during the years 1920, 1921 and 1922. This huge sum will, of course, be an addition to the investment in railroad property, on which the public will have to pay 5½ per cent for evermore.

"A very good reason why the estimate is low is that prices of coal and steel products have advanced greatly within the past few months. This will result in increased profits to the producers and manufacturers. Coal, for example, is selling for at least $1 more per ton at the mines than it was in March. Authoritative information has reached me of railroad contracts for coal made recently at prices as much at $7 per ton over the former figure. Even $1 a ton increase is exorbitant. It has been conclusively shown that the recent wage increase to miners adds less than 40c. to the cost of producing a ton of coal. If the selling price is advanced $1 it means 60c. additional profit to the coal operator."

Bureau of Mines Proposes to Use Airplanes In Its Mine-Rescue Work*

Can Be Used Only in Fairly Level Country When Snow Does Not Disguise Ground and During the Day—Bureau Will Use the Planes Belonging to the Air Service Which Are Located on an Average 150 Miles from Safety Stations

By F. J. Bailey†

IN THE fall of 1919 the U. S. Bureau of Mines began an inquiry as to the possibility of utilizing airplanes for quickly transporting engineers and oxygen rescue apparatus to mine disasters.

It was realized that this proposed use of airplanes has serious limitations, and that if it were feasible, the Bureau would have to rely on the co-operation of the established aviation fields of the U. S. air service for furnishing airplane service. Therefore Van H. Manning, then director of the Bureau of Mines, under date of Oct. 28, 1919, wrote the director of air service, outlining the rescue and first-aid organization of the bureau, the location of headquarters of district engineers, the distribution of safety cars and stations, and other essential details, and asking whether the air service could co-operate with the bureau in the event of serious mine disasters. Major-General Charles T. Menoher, director of air service, responded that the air service would be glad to co-operate as far as possible, and designated those air service stations which, being nearest the district engineers' headquarters, might be best able to assist.

For a mine to avail itself of the airplane service, should it be installed, it will have to find nearby a field 1,800 ft. square or thereabout. Such a field will be about a third of a mile long and a third of a mile broad and will have an area of about seventy-five acres. Invention may yet lessen these requirements.

The Bureau of Mines has ten mine-rescue cars and eight mine-safety stations distributed throughout the mining regions of the United States. The cars are each equipped with sets of oxygen mine-rescue breathing apparatus and first-aid supplies. The car personnel consists of a mining engineer, surgeon, foreman, first-aid miner, clerk and cook. A foreman miner is in charge of each station and at five of the eight stations are mine safety trucks. The work of the cars and stations is twofold: (1) Assisting in rescue and recovery work at mine disasters, and (2) training miners in mine-rescue and first-aid methods, and in investigations looking to prevention of mine accidents. The country is divided into nine safety districts, an engineer in charge of each.

Dayton Airplane Station Will Assist

A preliminary survey has indicated that airplane service might be effectively utilized in the flat-lying coalfields of Illinois and Indiana, and a co-operative agreement has been made whereby McCook Field, Dayton, Ohio, will maintain in readiness planes for assisting the Bureau of Mines safety station at Vincennes, Ind., in its rescue work. The Bureau of Mines district engineer at Vincennes will collect data on possible landing fields near the mines in this district, with maps indicating these landing places, their proximity to mines, or to towns and railway stations.

When the Vincennes station receives word of a serious mine disaster at a mine where a nearby landing field is available, or where a landing field is so situated that train or auto connection could be made with a decided saving of time, a call for planes could be sent to McCook Field. The planes could land at the Vincennes municipal landing field, where the district engineer or foreman miner of the bureau's station would be waiting, could take on gasoline and other supplies needed from the Bureau of Mines service station which is maintained there, and could carry the bureau's engineer with sets of rescue apparatus to the landing field near the scene of the disaster.

The engineer from the bureau would thus be on the ground early. The preliminary steps to be taken in the organizing for recovery work he could assist in directing. In the meantime a fully equipped Bureau of Mines rescue car or auto truck could be rushed to the mine, and on arriving there would find an adequately directed organization already functioning. This will conserve valuable time and might result in saving lives of entombed men that might otherwise be lost, as every minute is precious.

Much remains to be done before any decisive statements can be made as to the extent and effectiveness with which airplanes can be utilized in mine-rescue work throughout the country. The difficulties and problems involved are many and some of these will be discussed in the following paragraphs.

The distance of the air service stations from the safety stations, and thence to the mines, is a prime consideration. The air service stations are on an average of 150 miles from the safety stations, but some of them are much farther. Information as to flying time compared with time of travel by railroad or auto service is needed to predict whether airplane service or combined air and surface service could be utilized with advantage.

The greatest problem is that of suitable landing fields. First, fields must be available at the town where the safety headquarters are situated; second, fields must be established at the mines. As regards establishing landing fields near mines, careful survey is necessary to

*From article entitled "Use of Airplanes in Mine-Rescue Work," U. S. Bureau of Mines Reports of Investigations.
†Assistant to director, U. S. Bureau of Mines.

determine where level places are available that could be prepared for landings without much difficulty. In mountainous mining districts there are at many mines no level places suitable for landing. Such conditions are found in metal- and coal-mining districts of the Rocky Mountain states and the Pacific Coast states, and in a number of the coal fields of the Appalachian region.

The present types of airplane require a landing space about 1,800 ft. in extent in both directions. The development of planes capable of ascending from and descending to a landing of limited area would overcome the present lack, at many mines, of safe landing areas, and there is good promise of the development of such planes in the not distant future.

The service stations must have planes suitable for the work. Some air service fields are not at present equipped with types of planes suitable for carrying additional load, such as a passenger and rescue apparatus, or with planes having a sufficient gasoline supply to provide a good flying radius.

Obstacles to the Utilization of Airplanes

Flying at night, especially in mountainous country, would not be feasible. Neither could airplanes safely take the air in stormy weather. In regions of heavy snow, as in the Lake Superior district, planes could not be used in winter months, because the obliteration of landmarks by a deep blanket of snow makes it difficult for the aviator to pick his route with certainty.

An aerial map of the mining districts, showing safe landing fields, established aerial routes, and similar data is essential. The civil operations branch of the air service has made much progress on the mapping of commercial landing fields and the development of a system of aerial routes. The Bureau of Mines engineers in their field work will be able to compile data on the surface conditions near each mine visited, and map places suitable for landing fields. This data will be submitted to the air service as fast as accumulated.

In conclusion it should be remarked that too much should not be expected for the present in the use of airplanes in mine-rescue work. The prospects for such utilization in the mountainous districts of the West or in hilly regions of the East are not bright. In the mining regions of Illinois, Indiana and other Middle Western states where the surface is comparatively level there are excellent prospects that airplanes can frequently be used with advantage. If such use should result in the saving of lives at even one disaster, it would amply justify all the time and effort expended in this work. Moreover, as the commercial use of the airplane expands and improved types capable of landing in a small area appear, the field of application of airplanes to mine rescue work will be greatly broadened.

Commerce Commission Awards Red Ash Coal Co. Reparation for Unreasonable Rates

IN THE complaint of the Red Ash Coal Co. against the Central Railroad of New Jersey, charging that unreasonable rates were exacted for the transportation of anthracite coal, in prepared and pea sizes, in carloads, from Red Ash Colliery, in the Wyoming coal region of Pennsylvania, to Elizabethport, N. J., for reshipment by water, the Interstate Commerce Commission has ruled in favor of the plaintiff, ordering reparation in the sum of $12,863.58, with interest amounting to $1,165.17.

Movement of Bituminous to Tide During April

BITUMINOUS coal dumped into vessels at North Atlantic ports in April amounted to 4,056,000 net tons. Of this, 717,000 tons were shipped by vessel to New England. Forty-seven per cent of the total dumped was destined for export. Five thousand tons were exported from New York, 149,000 tons from Philadelphia, 417,000 from Baltimore, 1,258,000 from Hampton Roads, and 74,000 from Charleston. The total exports—1,903,000 net tons—were somewhat larger than those of October, 1919 (1,819,000 net tons); hitherto the record for one month.

COASTWISE MOVEMENT TO NEW ENGLAND, AND EXPORTS AT NORTH ATLANTIC PORTS (IN NET TONS)

Month	New England	Exports	Total Dumped at Tide
1919:			
January	721,000	456,000	2,954,000
February	554,000	334,000	2,537,000
March	490,000	266,000	1,962,000
April	635,000	379,000	2,703,000
May	772,000	476,000	3,082,000
June	790,000	755,000	3,388,000
July	711,000	739,000	3,389,000
August	839,000	1,129,000	3,875,000
September	839,000	1,526,000	4,304,000
October	657,000	1,819,000	4,597,000
November	703,000	230,000	2,235,000
December	674,000	182,000	2,036,000
Totals, 1919	8,385,000	8,291,000	37,062,000
1920:			
January	804,000	897,000	3,185,000
February	793,000	718,000	2,899,000
March	954,000	1,033,000	3,965,000
April	717,000	1,903,000	4,056,000

Commerce Commission Expected to Enforce Car Service Rules

OBSERVANCE of car service rules by the railroads is not likely to be the simple matter it now is when the Interstate Commerce Commission takes a real hand in this important phase of railroad operation with the board of powers of regulation and control contained in the Transportation Act.

Lax interpretation of the existing car service rules has been one of the reasons for the improper distribution of freight equipment as it existed some weeks ago and exists today. Some railroad operators favor the adoption of a per diem charge on all cars when off home lines sufficient at least to pay interest on the home line's investment as well as depreciation.

At present the per diem charge is only 90c. a day, and the temptation to reroute foreign equipment when business has offered that promised to yield a return far in excess of 90c. a day has proved too great to be ignored. Consequently freight equipment has been scattered widely. It is hoped that the increased powers of the Interstate Commerce Commission will bring about a strict observance of the car service rules in the future.

Substitute for Gasoline Sought by Congressman

REPRESENTATIVE Knutson has introduced a joint resolution in Congress providing for the appropriation of $250,000 to be used by the bureau of chemistry of the Department of Agriculture in the discovery of a suitable substitute for gasoline.

How Age and Occupation Affect Frequency And Duration of Disabilities*

Men Whose Records Have Been Noted Lost on an Average 6.6 Days Per Year—The Disabled Lost an Average of 28.1 Days—Frequency of Disability of Those Under Twenty Exceeds That of Any Other Group, but They Are Soon Cured of Their Ills

BY W. W. ADAMS†

FOR many years people have questioned whether it is the experienced or the inexperienced miner who is most frequently injured in mine accidents. A satisfactory answer has never been forthcoming because of the absence of sufficient basic information. Any data, however incomplete, bearing upon this subject should therefore be welcomed by everyone interested in the matter. Two recent reports published by a Federal bureau set forth, in a limited way, the relationship between the age or occupation of an individual and the liklihood of his being disabled by accident or illness. The reports are based on a group of 185,018 men (whose ages varied from 16 to more than 70 years) engaged in 42 wage-earning occupations, during the five-year period 1912 to 1916. These men, who were members of a mutual-benefit association, formerly had been residents of Central Europe, and upon their immigration to this country entered employments of a wageearning character, principally in the industrial centers in the Eastern part of the United States. Of these 185,018 men, 43,485 were disabled for a period of time equivalent to 1,223,324 days. This represents a loss of 28.1 days for each disabled person, or 6.6 days for each of the 185,018 persons who were liable to accident or sickness.

Mine workers have a higher disability rate, both as to frequency and as to duration, than the average workingman and this is true of all periods of five years into which statisticians have divided the life of the worker. In no age-group, however, do miners have the greatest disability frequency and only between 35 and 44 do they have the largest number of disability days of all occupations.

Of the total number of disability cases, 12,200, or 28 per cent, were due to accidental injuries; of the total number of days lost, 293,600 days, or 24 per cent, were due to injuries. Unfortunately, these figures cannot be segregated to show the industries to which they apply nor the ages of the persons disabled. Therefore the following remarks relate to disability caused mainly by sickness rather than accident. The 185,000 persons are shown in 5-year age-groups, beginning with those between 16 and 19 years of age, with the number of men in each group who were disabled and the length of time their disability continued. Sickness and accidents occurred most frequently (312.8 per thousand) to men under 20 years of age, whereas those between 30 and 34 years of age were disabled less frequently (222.2 per thousand) than any other group. From this point, however, the tendency to disability showed an almost unbroken increase with the age of the individual, although in no group did it reach the high record of those under 20 years old.

There was a marked difference between the number of cases of disability in each age-group and the loss of time caused by such cases.

Persons under 20 years old, although incapacitated more frequently than those of any other age, lost little time from their work, the average being 5.2 days for all wage earners of this age. The average time lost is even less for men between 20 and 24 years old, but from this point the period of disability, like the number of cases of disability, increases with advancing age, this increase becoming especially noticeable among men over 50 years of age.

‡Monthly Labor Review for November 1919 and March 1920, published by the Department of Labor.

*"Influence of Age and Occupation on Frequency and Severity of Disability," published in the Monthly Reports of Investigations" of the U. S. Bureau of Mines.

†Mine accident statistician, U. S. Bureau of Mines.

DISABILITY CASES AND DAYS OF DISABILITY PER 1,000 MEMBERS, BY AGE-GROUPS

Age Group	Total Members — Number	Total Members — Per Cent of Total	Cases of Disability — Number	Cases of Disability — Per Cent of Total	Cases of Disability — Per 1,000 Members	Days of Disability — Number	Days of Disability — Per Cent of Total	Days of Disability — Per 1,000 Members
Under 20 years	406	0.22	127	0.29	312.8	2,108	0.17	5,192.2
20 to 24 years	7,168	3.87	1,778	4.09	248.0	34,296	2.80	4,784.6
25 to 29 years	15,267	8.25	3,574	8.22	234.1	76,619	6.26	5,018.6
30 to 34 years	21,886	11.83	4,862	11.18	222.2	106,162	8.68	4,850.6
35 to 39 years	27,496	14.86	6,197	14.25	225.4	155,209	12.69	5,644.7
40 to 44 years	30,746	16.62	7,104	16.34	231.1	196,206	16.04	6,381.5
45 to 49 years	31,579	17.07	7,150	16.44	226.4	206,860	16.91	6,550.5
50 to 54 years	25,484	13.77	6,044	13.90	237.2	189,850	15.52	7,449.8
55 to 59 years	16,229	8.77	4,168	9.58	256.8	146,777	12.00	9,044.1
60 to 64 years	6,689	3.62	1,859	4.28	278.0	80,459	6.58	12,028.5
65 to 69 years	1,843	1.00	557	1.28	302.2	25,361	2.07	13,760.7
70 years and over	225	0.12	65	0.15	288.9	3,417	0.28	15,186.6
Totals	185,018	100.00	43,485	100.00	235.0	1,223,324‡	100.00	6,611.9

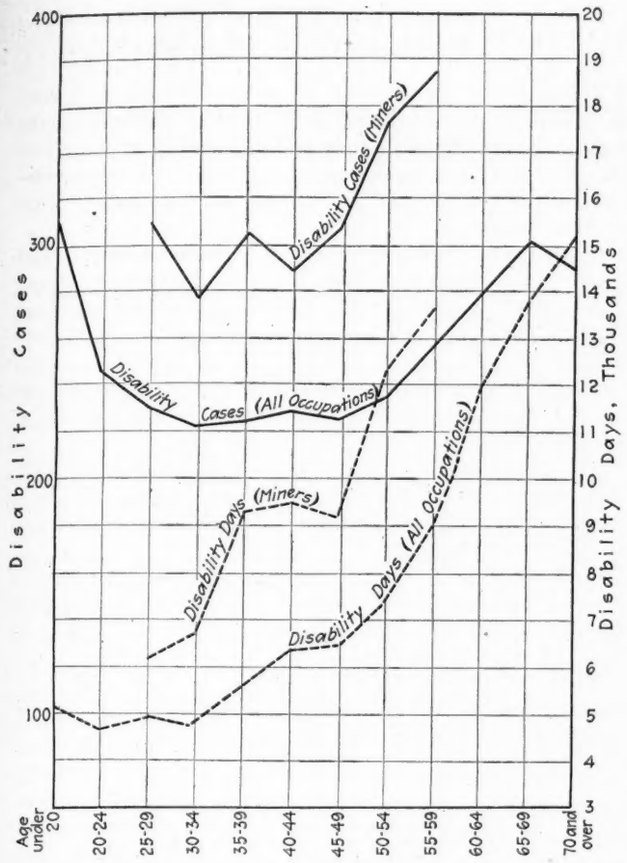


CHART SHOWING NUMBER OF DISABILITY CASES AND OF DISABILITY DAYS FOR AGE PERIODS

The experience of the insurance company makes it clear that the mine worker insured by it had more occasions for idleness due to sickness and accident than the man in the average occupation and that, for the mine worker the length of layoff was also longer. The duration of his disability and its frequency increased also with increasing years as was the experience with the average worker.

When the employees of a particular age among the 185,018 men are further classified to show the number employed in each of the 42 occupations, the number of persons in each group becomes so small that any accident or sickness ratio based thereon loses much of its value. Furthermore, the occupations are vaguely defined and the classes of employees included cannot be stated. Moreover, many occupations are not listed, some of which, notably deep-sea fishermen, would probably show a high disability rate. The figures should therefore be used merely as helpful guides until it is possible to obtain larger and more representative figures for each group.

With this observation as a caution, it may be pointed out that freight handlers between 25 and 29 years old were disabled more frequently than men of any other age or occupation (423 per thousand) while the greatest freedom from disability was enjoyed by jewelers between 50 and 54 years of age (107 per thousand).

As regards the length of time lost from disability, railway employees between the ages of 55 and 59 years lost the most time (19.4 days for each man so employed), and tanners between 25 and 29 years of age the least (1.4 days per man employed).

In the foregoing and all other comparisons persons employed in the professions are excluded as being of a distinctly different class as regards liability to accident and illness. The figures show that this group enjoys a low disability rate both in the number of cases that occur and the period of enforced idleness.

Taking each of the seven age-groups under separate consideration one occupation in each will stand out most prominenly as having the larger number of disability cases among its memmbers. For this part of the study the only information available applies to men between 25 and 59 years of age. As stated before, among men between 25 and 29 years of age the freight handlers were the workers most frequently disabled; between 30 to 34 years of age, the molders; between 35 and 39 years, railroad employees; between 40 and 49 years, drivers and between 50 to 54 years the blacksmiths led, being more fequently disabled than men of any other occupation in the same age-group.

In like manner we may learn in which occupations and at what ages disability occurs with the least frequency. The number of persons disabled in each age-group reached its lowest point in the following occupations: Age 25-29, tanners; age 30-34, plasterers; age 35-39, printers and engravers, and employees of clay-product manufacturing establishments, the length of disability for these two classes of employees being equal; age 40-44, dyers; age 45-59, jewelers.

Disabilities May Be Frequent Yet Not Long

Employees of a particular age or occupation most frequently affected by sickness or accident are not always the employees who lose the greatest amount of time from their work. For example, among wage earners between 25 and 29 years of age disability occurs most frequently, as previously stated, to employees handling freight, but men of this age employed as barbers are idle over a greater period of time, although in these two groups the difference is but slight. In the other occupations and age-groups the employees losing the most time by reason of disability are: Age 30-34, employees of clay-product manufacturing establishments; age 35-44, miners; age 45-49, miscellaneous building-construction employees; age 50-54, freight handlers; age 55-59, railway employees.

As regards time lost from disability, the following occupations stand out most prominently in the respective age-groups as enjoying the greatest freedom from lingering periods of recovery; Age 25-29, tanners; age 30-34, leather workers; age 35-39, electrical workers and barbers, the rate for these two classes being equal; age 40-49, jewelers; age 50-54, electrical workers; age 55-59, jewelers.

Disability Among Miners Above the Average

Among the 168,687 men between the ages of 25 and 59 years whose occupations have been divided into 42 classes, 6,484 men were employed as miners. It is unfortunate that a larger figure is not available to serve as a basis for more trustworthy comparisons between disability among miners and that among persons engaged in other industries. In the absence of more reliable data, however, the statement may be made that out of the total number of men in the 42 occupations 39,099 were disabled and lost 1,077,683 days from their work through illness or accidents, or an average of 6.4 days for each of the 168,687 persons.

Of the total number engaged in mining 2,012 were disabled and lost about 59,300 days, or an average of 9.1 days for each miner employed. Thus the disability among miners caused by accidents and illness appears

to be much higher than the average for all occupations combined; also among the employees of all occupations accidental injuries cause about 28 per cent of the disabilities and 24 per cent of the disability days, but among miners accidents are perhaps responsible for an even greater proportion of disability than illness.

Accidents and other causes of disability among miners could be more intelligently studied if similar detailed information could be obtained for a much larger number of persons. Many mining reports give information regarding persons injured or killed in mine accidents, such as age, nationality, specific occupation, and length of experience, but similar information regarding the total number of men employed in each of these groups is usually lacking. If such information were uniformly given for all employees, more accurate conclusions could be made as to the causes and severity of disability, especially that due to accidents. Greater accuracy along this line would doubtless be an aid in reducing the number of disabilities from industrial causes, as well as the compensation for loss caused by such disabilities.

North Atlantic Exports for 1918, 1919 and 1920 Compared

COAL exports from the United States in the calendar year 1918, as reported by the Bureau of Foreign and Domestic Commerce, amounted to 22,351,000 net tons of bituminous and 4,968,000 net tons of anthracite. Ninety-nine per cent of the anthracite and over 80 per cent of the bituminous coal went to Canada, by rail or lake.

In 1919 the exports of anthracite were 4,968,000 net tons, again almost exclusively shipments to Canada. The bituminous exports for that year were 20,126,000 net tons, of which 12,064,000 tons went to Canada and Mexico, and the balance were oversea shipments to Europe and other countries, largely from North Atlantic ports.

BITUMINOUS COAL DUMPED AT NORTH ATLANTIC PORTS FOR EXPORT BY MONTHS, JANUARY, 1918, TO DATE, (IN NET TONS)

Month	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Totals
1918						
January	.....	24,000	4,000	190,000	.....	218,000
February	1,000	7,000	7,000	280,000	.....	295,000
March	2,000	15,000	6,000	372,000	1,000	396,000
April	1,000	17,000	10,000	340,000	.....	368,000
May	1,000	3,000	7,000	356,000	.....	367,000
June	4,000	4,000	4,000	346,000	.....	358,000
July	12,000	4,000	15,000	240,000	.....	271,000
August	2,000	.....	.....	237,000	.....	239,000
September	4,000	5,000	5,000	428,000	1,000	443,000
October	2,000	.....	8,000	223,000	4,000	237,000
November	.....	3,000	20,000	204,000	4,000	231,000
December	.....	9,000	26,000	282,000	.....	317,000
Totals 1918	29,000	91,000	112,000	3,498,000	10,000	3,740,000
1919						
January	1,000	26,000	36,000	392,000	1,000	456,000
February	.....	22,000	33,000	273,000	6,000	334,000
March	.....	12,000	30,000	217,000	7,000	266,000
April	1,000	9,000	86,000	280,000	3,000	379,000
May	1,000	33,000	99,000	328,000	15,000	476,000
June	.....	79,000	192,000	471,000	13,000	755,000
July	2,000	134,000	197,000	391,000	15,000	739,000
August	.....	185,000	289,000	621,000	34,000	1,129,000
September	1,000	271,000	362,000	860,000	32,000	1,526,000
October	3,000	327,000	433,000	1,056,000	.....	1,819,000
November	2,000	42,000	11,000	135,000	40,000	230,000
December	.....	.....	2,000	158,000	22,000	182,000
Totals 1919	11,000	1,140,000	1,770,000	5,182,000	188,000	8,291,000
1920						
January	.....	103,000	174,000	591,000	29,000	897,000
February	.....	43,000	58,000	553,000	64,000	718,000
March	.....	34,000	83,000	858,000	58,000	1,033,000
April	5,000	149,000	417,000	1,258,000	74,000	1,903,000
Totals 1920 to date	5,000	329,000	732,000	3,260,000	225,000	4,551,000

Power Produced and Fuel Consumed by Public Utility Plants

FIGURES of production of electric power and consumption of fuel by public utility power plants in the United States for the months of January, February and March, 1920, as compiled by the Division of Power Resources, U. S. Geological Survey at Washington, are printed below.

The figures are based on returns received from about 2,800 power plants of 100-kilowatt capacity, or more, engaged in public service, including central stations, electric railways, and certain other plants which contribute to the public supply. The capacity of plants submitting reports of their operations is about 90 per cent of the capacity of all plants of the country listed by the survey.

The mean daily output for the first quarter in 1919 was 105.3 million kilowatt-hours and the mean daily output for the first quarter of 1920 was 122.2, an increase of 16 per cent.

The curve of mean daily output for 1920 indicates a marked increase in the output for March. The April figures will be of special interest as they will show if this increase is maintained.

This report is subject to revision in subsequent statistical reports of the United States Geological Survey relating to power production.

THOUSANDS OF KILOWATT-HOURS PRODUCED

State	By Water Power			By Fuels		
	January	February	March	January	February	March
Alabama	34,864	36,780	39,354	14,452	7,929	9,736
Arizona	8,567	6,883	8,899	6,276	5,708	6,423
Arkansas	132	120	130	9,290	8,326	9,056
California	166,806	148,839	203,595	113,446	111,797	92,222
Colorado	12,784	12,082	12,665	22,811	19,282	20,416
Connecticut	9,069	8,553	17,607	59,256	49,801	52,120
Delaware	.....	.....	.....	6,807	6,138	6,263
Dist. of Columbia	.....	.....	.....	23,317	20,763	21,356
Florida	965	818	1,024	10,897	10,461	11,210
Georgia	43,816	42,016	43,697	10,696	8,260	8,770
Idaho	48,564	43,336	43,065	1,348	1,133	1,315
Illinois	14,831	14,147	14,588	260,723	239,928	246,478
Indiana	2,943	2,741	3,637	91,817	71,503	73,351
Iowa	55,538	49,415	54,417	31,733	30,337	38,846
Kansas	1,741	1,240	1,598	35,913	32,391	32,916
Kentucky	.....	.....	.....	23,449	21,768	22,711
Louisiana	.....	.....	.....	18,126	16,755	17,884
Maine	23,491	20,866	23,658	1,577	1,614	918
Maryland	284	327	131	31,261	26,889	21,530
Massachusetts	21,987	16,248	34,367	147,914	129,365	123,042
Michigan	51,749	47,291	64,503	138,379	129,875	130,523
Minnesota	28,053	26,705	32,889	36,157	30,083	25,681
Mississippi	.....	.....	.....	5,848	4,783	5,075
Missouri	5,720	3,987	4,916	54,143	52,672	53,740
Montana	89,574	90,411	104,991	596	540	515
Nebraska	909	662	668	20,436	17,305	18,028
Nevada	3,416	3,420	3,180	852	845	882
New Hampshire	4,322	4,001	5,223	5,166	4,289	2,319
New Jersey	143	102	161	101,478	88,120	94,975
New Mexico	53	57	59	1,593	1,447	1,529
New York	227,033	203,282	248,218	382,194	338,960	328,475
North Carolina	52,880	45,576	57,560	10,745	9,040	9,670
North Dakota	.....	.....	.....	2,718	2,270	2,170
Ohio	1,490	2,101	3,222	258,335	234,061	252,803
Oklahoma	217	182	231	17,163	15,245	15,935
Oregon	32,359	28,323	32,125	7,845	8,624	7,788
Pennsylvania	45,359	43,500	56,881	329,625	294,483	326,074
Rhode Island	355	436	719	37,114	32,599	26,876
South Carolina	60,531	52,212	55,165	5,768	4,563	4,976
South Dakota	477	474	1,162	3,382	3,258	2,789
Tennessee	39,443	31,664	40,125	9,926	11,581	9,818
Texas	74	231	380	55,424	49,651	53,266
Utah	13,932	14,635	18,565	.....	8	12
Vermont	15,467	11,732	18,969	786	1,038	344
Virginia	13,809	16,441	21,310	30,435	24,240	22,219
Washington	103,981	94,907	98,839	4,480	2,849	3,450
West Virginia	1,776	2,334	2,101	96,221	83,501	94,479
Wisconsin	37,843	32,321	43,585	42,336	43,606	43,733
Wyoming	152	145	154	4,585	4,178	4,162
Totals	1,277,499	1,161,543	1,418,233	2,584,839	2,313,862	2,358,869
Total by water power and fuels	.....	.....	.....	3,862,338	3,475,405	3,777,102

In some of the States electricity is produced by the use of wood as fuel. During March about 17.0 million kilowatt-hours, or 0.4 per cent of the total for the month, were produced by wood-burning plants. The following list gives the States and their output in millions of kilowatt-hours, which produces the larger amounts of electricity by the burning of wood: Oregon, 7.4; Minnesota, 1.7; Wisconsin, 1.3; Idaho, 1.3; Washington, 1.1; California, 0.5; Louisiana, 0.6; and Florida, 0.4.

Coal-Mine Compensation in Kentucky*

Inspection Reports, Safety Engineering Service, Low Cost and Checking Up of Experience Records Are the Features of a System Designed to Exceed the Possibilities of Mutual or Self-Insurance

By Herbert M. Wilson

THE subject which you have assigned me infers a rather large commission and makes it necessary that I hastily review the history and underlying principles governing the operation of the workmen's compensation law at coal mines. You will, therefore, pardon me for repeating what many of you already know—that the Kentucky law requires insurance or the protection of self-insurance so as to make certain the payment of compensation benefits which may run over a long period of years; that because of the high loss rate from normal accidents as well as from catastrophes in coal mining, insurance carriers were at first unwilling to cover this line of risks; that in order to demonstrate the ability of stock insurance companies to protect their customers in every line, however hazardous, they organized the Associated Companies for the purpose of pooling the losses on this business. The Associated Companies at once organized an inspection and safety engineering force and developed a standard system of recording conditions revealed by inspection, and through them the modifying of premium rates so as to give credits or charges according as safety conditions within a mine are better or worse than the average.

First Schedule Rates Nearly Correct

The history of schedule rating under this plan has had its ups and downs, with slowly gained knowledge of the requirements by the insurance carriers, mine operators and state officials, with the following general results:

For the first year of the law the actuaries and safety engineers of the Associated Companies computed a base rate of $4.24 per hundred dollars of payroll, including medical benefits, as necessary to pay the costs of compensation insurance for coal mines. That their first effort was not far from right is evidenced by subsequent experience. The first year of schedule-rating inspection developed the fact that while the coal mines of Kentucky had an excellent official record for fatal accidents, they produced in fact a relatively bad non-fatal experience and were in decidedly substandard condition as respects the causes of normal accidents. It was at once evident that for the then conditions of mines the rate $4.24 was too low, and in 1917 the Workmen's Compensation Board, unwilling to increase this rate, directed a modification in the method of determining the schedule rate, with a view of earning a return premium rate of $5, which rate it was computed was necessary to carry the business with solvency. The result was to produce an increase in all schedule rates.

In consequence more intensive study was given the situation by mine operators and better safety service and co-operation were required from the inspectors of the insurance carriers, with the result that a rapid inprovement was made in the safety conditions of Kentucky mines and there was a correspondingly rapid drop in premium rate in 1918.

Recently, as a result of prolonged and intensive study of the accident experience in Kentucky mines under workmen's compensation by the board, by the insurance carriers and by the National Council on Workmen's Compensation Insurance, a base rate for Kentucky coal mines was recently promulgated, effective January 1, 1920, which is also the estimated average return rate needed to carry the business, namely, $3.65 per hundred dollars of payroll. This base rate is believed to reflect the present safety condition of the mines as compared with the standards adopted. It is equivalent, as compared with the former base rate of $4.24, to an average improvement in the safety condition of the mines of from five to six of the physical hazards found in mines.

Ratio of Losses to Premiums Shrinks

During the period in which the law has been in operation—namely, the policy years 1916 to 1919 inclusive—the ratio of losses incurred to premiums written has diminished from 112 per cent in 1916 to 69 per cent in 1919. This latter loss ratio is the maximum at which the business can be conducted without loss; for the cost of conducting the business, including taxes, inspection and agents, service, claims, settlements, etc., is 33 per cent of the premium earnings, not to mention the cost of catastrophes. It is, evident, therefore, that prior to 1919 the business was carried by the insurance carriers at a loss, and that to conduct the business at the present rate it is necessary that there be further improvement in the safety condition, with corresponding reduction in loss ratio and cost.

It is particularly worthy of note that while the cost of every other commodity entering into our living and business conditions has greatly increased during the period, the cost of workmen's compensation insurance has diminished. And this is in spite of the fact that during the same period the wage scale has greatly increased, while during part of the period the safety conditions have not improved because the unsettled labor conditions in several states other than Kentucky, notably in Pennsylvania, the compensation benefits have in the same time been increased by amendments to the law.

Since I last addressed you, a year ago, a material change has been made in the system of inspecting and schedule rating coal mines, not only in Kentucky but in other states. This has been the natural outcome of the entrance into the field of competing insurance carriers and of the consequent desire of state authorities that the method of inspecting and schedule rating shall be so standardized as to eliminate as far as possible any likelihood that unfair competitive practices

*A paper by the general manager of the Associated Companies, Hartford, Conn., presented at the meeting of the Kentucky Mining Institute, Lexington, Ky., June 4, 1920.

shall develop. This standardization has been effected through an organization having headquarters in New York City known as the National Council for Workmen's Compensation Insurance.

Membership in the council and the direction of its affairs is by state insurance departments or boards, state inspection and rating bureaus and all compensation insurance carriers, stock, mutual and reciprocal. The council has recommended, and the State of Kentucky has adopted, a system whereby all inspection is done by a bureau jointly managed by the state officials and insurance carriers, known as the Southern Coal Mine Rating Bureau, of which W. B. Johnston, formerly with the Workmen's Compensation Board of Kentucky, is manager, with offices in Louisville. All inspections are made and are schedule rated by the bureau in the same manner for all carriers.

Rate Adjusted After Second Inspection

The safety standards are practically identical with and were developed from those of the Associated Companies, so that there is nothing in them with which you who have previously been insured are not familiar. The same is true of the schedule rating system, the effect of which must be to reproduce the average return rate sought, $3.83, which is the present average rate resulting from the inspection of your mines by the Associated Companies. But the effect of inspection by bureau employees will undoubtedly be a much closer adherence to the literal wording of the safety standards. The inspector will not be able to use his skilled judgment in not charging an item which is no real hazard, though it may be a violation of the standard. He must, in other words, charge every item regardless of whether for the particular mine the standard does not truly apply. As a result the average schedule rate of your mines after the first bureau inspection will produce an increase on an average of perhaps 50c. So soon as the exact amount of this increase is determined to reproduce the proper average premium rate the excess will be returned so that no mine will be unjustly charged. Wherefore as soon as your policy is renewed at the preliminary bureau rate, you will be entitled to a re-inspection, the result of which will be retroactive to the policy date.

It is presumptive that you will at once improve as far as possible any sub-standard conditions revealed by the preliminary bureau inspection, with the consequent result that the re-inspection should show a material reduction in charges and should consequently keep down to its present level or perhaps reduce your schedule rate below that last promulgated.

I have chosen at random a few examples of the practical operation of schedule rating inspection for the Compensation Insurance of Kentucky coal mines. These examples are typical of many in the various coal mining districts and were selected not because their experience was unique but only because they had continuous history of schedule rating from 1916, when the law went into effect, to 1919 inclusive and with rather uniform payroll throughout this period.

The first example is of a mine in the northeastern coal field, employing from 160 to 180 men; audited payroll $120,000 to $190,000 per annum. When first inspected in August, 1916, the mine was in excellent safety condition and reflected a good moral hazard, with the result that the first schedule rate was below the base rate, namely, $3.34. During this policy year there were accidents and the loss ratio was exceptionally good. In the second policy year, 1917-1918, and so far as audited for the year 1918-1919, equally good experience was developed; only one non-fatal accident in the second and five in the third year.

This condition is indicated by and only reflects the evidence of the schedule-rating inspections. The first re-inspection of 1918 showed improved safety conditions and reduced the schedule rate to $3.16. That of 1919 reduced the schedule rate further to $3.01. The last schedule rate promulgated shows still further reduction, viz., $2.83. At this time experience rating became effective and this assured earned an experience credit of 19c., making his present adjusted rate $2.64, one of the lowest adjusted rates developed for any mine in Kentucky. In view of the excellent record of safety work by this mine operator and co-operation with and by our inspectors, I feel that there can be no impropriety in stating that the mines referred to are those of the Northeastern Coal Co., of which Henry LaViers is manager.

Schedule Rate a True Index of Safety

It is evident from the above that the improved safety conditions, as disclosed by inspection, and the reduction in schedule rate resulting therefrom have been a true index to the accident ratio of this mine, for though there has been no material reduction in the loss ratio, because it was already low, there has, on the other hand, been no increase and no abnormal accident experience. To offset this low compensation cost there has resulted a reduction in schedule rates from $3.83 in 1916 to $2.63 per hundred dollars of payroll in 1919, and a corresponding reduction in the total premium paid by the assured, even though in the same period there has been a very material increase in the wage scale and total payroll.

To go further into detail, the first inspection of this mine showed it to be sub-standard in about half a dozen features; among others, first aid supplies, obstructions in clearance and shelter holes, location of magazine, guarding of trolley wire, poor handling and storage of explosives. The inspection of the second year showed the removal of several of these conditions; viz., improvement in first aid, no obstructions in clearance and shelter holes and the guarding of trolleys. The last inspection showed practically all unfavorable conditions removed with the exception of location of magazines, storage of explosives underground and some insufficient timbering. Further reduction can be earned by this assured for improvement of physical hazards still remaining, by earning additional experience credits, and finally by earning the new credit above referred to, for perfection of safety organization, education and inspection, which latter credit alone may result in 40 cents further reduction.

A typical mine in eastern Kentucky, employing seventy-five men throughout the three years, had payroll ranging from $86,000 in 1916 to over $180,000 in 1919. This large increase was due to wage-scale increase and more active production. In 1916-1917 the audited premium was over $2,300. There were this year two fatals and twenty-three non-fatals, wherefore the insurance carried paid in compensation claims over $6,600, or nearly three times the premium earned. The loss ratio was 285 per cent. This is a good illustration of the hazards of compensation, as a fatal is often as likely to occur as a non-fatal. The only

effect of this bad record on the Associated Companies was a more intensive effort by inspection and safety engineering to improve the experience. That this was effective and that the mine operator heartily co-operated is evidenced from the fact that in the next year, 1917-1918, with an audited premium of $8,470, there were no fatals, a few more non-fatals, viz., 28, and a material reduction in the compensation costs, viz., $2,300. For the year 1918-1919 the premium and losses are not closed, but they show about the same result as for the previous year but with 24 non-fatals, some of which may prove to be expensive.

Rates Decrease Despite Growing Payroll

This cost history is closely paralleled by the schedule-rating record. First schedule rate, 1916, $3.88; the next, at the end of 1917, which the schedule-rating system was changed to produce increases, $4.51; inspection made only a few months later in 1918, $4.30; first inspection 1919, $3.40; last inspection, 1919, $2.65, a drop from the maximum of $1.86. The experience of this mine not having been good, because of the fatal costs, the last schedule rate was modified by an experience charge of 46c., thus making the final adjusted rate for the last period $3.40. There is every likelihood that in this case there will be further reduction on schedule rating and improvement in the experience-rating modification and there may be credits for safety organization. During this period the assured has earned reductions in his premium rate corresponding with the reduction in schedule rate, also reduction in the total premiums paid, in spite of the material payroll increase to double that of the first year. At the same time, while there has been little improvement in the loss ratio, there were no further fatals and no increase in number of non-fatals.

I assure you that the above are typical records illustrating a very large number of the medium and larger mines insured in Kentucky, and this record is encouraging to the Associated Companies and I believe also to the Workmen's Compensation Board and is doubtless equally encouraging to the mine operators.

In the industries in general other than coal mining the best information indicates that from 70 to 80 per cent of the accidents are due to carelessness, indifference or recklessness. Only the remaining 20 to 30 per cent is due to physical conditions which may be safeguarded. In coal mines, we have, however, for schedule-rating purposes generally accepted 40 per cent as the portion due to safety organization and have accepted 60 per cent of the accidents as being due to physical causes which may be safeguarded. In fact we now insure many mines in which nearly everything has been done to correct so-called sub-standard physical conditions, and these mines are practically perfect in this respect, yet the number of accidents and the severity have not been reduced from 60 per cent.

The best available statistics would indicate that of this moral hazard which we place at 40 per cent of the total, about one-half, or 20 per cent, of the accidents, are due to what we may call bad discipline—that is, carelessness, indifference and negligence of the mine officials, and is due to the same causes among the mine employees. The latter we usually call disobedience of orders, carelessness or ignorance. The former may be due to indifference or neglect of the foreman or of some other official.

Rarely if ever is the management deliberately indifferent or the foreman deliberately negligent. In but few cases, however, have either yet come to realize the importance of compensation as an element in the cost and efficiency of the operation. Gradually with experience this is coming home to them. Many are the cases where we have urged the mine operator year after year to carry out some simple safety improvement costing little money or time, but without result until some higher official or the owner himself was personally impressed with the loss he was incurring by the indifference of his management to these matters. Suddenly in case after case it has been borne in on the mine operator that recommendations for safety improvements should be carried out, with the result that the underground management has got busy and produced results which were promptly reflected in a decreased accident rate and a reduced premium and rate.

Experience Rating Helps Moral Hazard

The addition a year ago of experience rating as a a further modification of the schedule rate has been helpful in producing a better moral hazard, that is, a more lively interest by the management in safety measures. A new and third feature has been added to the schedule this year, consisting of credits for the perfection of safety organization, education and for the more intensive inspection at the face. This has resulted in still other mining companies becoming interested more actively in safety measures. Until every mine operator makes it perfectly clear to each subordinate in his mine by his own actions and interest in their performance that he, "the old man," personally wants everything done that is proper to promote safety just as sincerely as he wants economy in operation, there can be no material improvement in the loss ratio from accidents or in the premium rate for insurance.

Taken in the gross the loss ratio in Kentucky in 1916 was 112 per cent. It was this which caused the change in schedule rate for the next year. The loss ratio in 1918 was 88 per cent, still on the debit side for the insurance carriers. Last year the loss ratio was 69 per cent, just on the edge of paying expenses. These results indicate to me clearly that coupled with independent bureau inspection and the consequent spur to added safety service by the insurance carriers, there will be a still further steady improvement in the physical and moral condition of the mines so far as safety is concerned, and a correspondingly steady reduction in the premium rate and in the total premium costs, with a diminishing accident record.

The mine operators of Kentucky will not find it advantageous either to self-insure or to insure partial coverage. Under such quasi-insurance protection they will not have the frequent impartial inspection reports concerning what their employees are doing to keep down their accident rate, which they do have from the schedule rating of the state bureau, nor the independent safety engineering service they get from full-coverage compensation-insurance carriers. Nor will it be possible for them otherwise to protect themselves at any less cost, for the reason that it is the duty of the Workmen's Compensation Board and of its agents, the National Council and the Rating Bureau to check up their experience from year to your, and to see if the rates charged are only such as will carry the business with a minimum margin of profit. The

Associated Companies ask only 1½ per cent profit, and with such a close margin of figuring it is evident that stock insurance, because of its absolutely gilt-edge protection, should be quite as attractive as any plan for mutual or self-insurance.

Coal Prices in England Increased

THE maximum price of industrial coal in England, the *Colliery Guardian* reports, was raised on May 12 by 4s. 2d. per ton, and that of household coal by 14s. 2d.

Sir R. Horne stated in the House of Commons on May 10 that the necessity for an increase would have arisen apart from the recent wage advance to miners; but the wage advance increased the cost of production by about 2s. 10d. per ton, and the increases necessary to place the price on an economic basis was made greater by that amount. The Government, he stated, thinks it essential that the present system of controlling inland distribution should be altered as soon as possible, and this could only be done if the artificial differentiation between the prices of household and industrial coal were removed.

The following extracts from a statement issued on May 10 explain the reasons for the increases in coal prices:—

The figures of cost of production and selling price of industrial coal are as follows:—

	s.	d.
COST PER TON:		
Wages, stores, together with owners' pre-war standard of profits	30	5
RECEIPTS:		
Average price per ton realized for inland disposals (excluding sales to workmen)	29	1
Deficiency	1	4

In the case of household coal, this deficit is greatly increased by the concession under which the allowance of 10s. per ton was made to the domestic consumer as a temporary alleviation of the price of coal during last winter. In the result the deficit on household coal is 11s. 4d. per ton. These deficits have hitherto been made up by the profits made on coal which has been exported. The recent advance of wages to the miners will now increase the adverse balance by 2s. 10d. per ton—that is to say, to 4s. 2d. per ton in the case of industrial coal, and 14s. 2d. per ton in the case of domestic coal.

With regard to the price now proposed for domestic coal, it is to be observed that the artificial differentiation between the price of household coal and that of industrial coal has caused great burdens in administration. Further, the control of inland distribution of coal has, in the view of the government, weakened supervision and retarded development in the industry, and they have decided that, in the interest of efficiency and production, it is desirable to remove the present system of controlling inland distribution as soon as possible. In these circumstances, an artificial discrimination between the price of household coal and that of industrial coal cannot be maintained. It therefore follows that the price for both sets of consumers must be placed on a uniform basis. Only by taking this action will it be possible to bring the industry back to normal conditions.

The prospects of the export trade, and the profits to be derived from it, cannot be accurately estimated. Whatever the surplus may be the view of the government is that it should go to the exchequer. It is obvious that if the coal trade were like other industries at present free of control, sums much greater than any that can be derived from profit on the export trade would accrue to the exchequer in the shape of excess profits duty. By the arrangement now proposed, the consumers of all classes in this country will still obtain coal at a cost very much cheaper than the world market price. This result, however, is effected not only by restricting the profits of the coal owner, but also at the expense of the exchequer, which will lose a substantial portion of the revenue which would otherwise go to it from the coal trade as excess profits duty.

[At the normal rate of exchange a shilling is worth 24.3c.]

Denver First-Aid and Mine-Rescue Contest Now Planned for September

A FIRST-AID and mine-rescue contest which in a way will be international in its aspects, in that miners of Canada and Mexico as well as those of the United States will be invited to participate, will be held in Denver, Col., Sept. 9, 10 and 11, under the auspices of the Bureau of Mines, Department of the Interior. It had been previously announced that this meet was to take place in August, but plans have since been rearranged and the events will take place in September on the dates above given.

These contests under the auspices of the Bureau of Mines are rapidly becoming the event of the year in mining circles. Last year, when the contests were held in Pittsburgh, Pa., more than one hundred first-aid and mine-rescue teams from mining companies participated for the cups and medals. So great was the general proficiency among those teams in life-saving methods that the judges of the contests had difficulty in picking the winners. A number of teams in different events were tied and it was necessary to run off the events again.

So many mining companies throughout the country now have their own teams at the mines that state contests are being held yearly and the best teams are generally sent to the Bureau of Mines events. At present the teams in the principal mining states are preparing for preliminary meets to select their best teams for the big affair. Last year teams were present at Pittsburgh from Colorado, Montana and Washington.

Trunk Lines to Relieve Coal Shippers of Prepayment Charges to Canada

TRUNK line carriers expect to decide very soon on the action they will take in regard to relieving shippers of coal to Canada of the requirement of prepayment of charges. The Canadian situation is becoming critical. The Dominion must have 18,000,000 tons of Eastern coal to keep warm and to keep its industries going. With the shortage of car supply and other difficulties the prepayment situation has added materially to the problem of moving coal to Canada.

Liability for Minimum Royalty.—Where a coal mining company took a lease on land supposed to contain coal, agreeing to pay "as a minimum annual royalty the sum of $1,000 per year," commencing three years after execution of the lease, the company could not avoid liability for the annual payments on the ground that no coal had been removed, in the absence of proof that no merchantable coal existed under the land in merchantable quantities. (*Iowa Supreme Court, Rowland vs. Anderson Coal Co., 162 Northwestern Reporter, 321.*)

The Engineer's Part in the Shaping of National Prosperity*

His Unremitting Efforts for Safety Make the Engineer an Insurance Agent of the First Magnitude—Production and Distribution, the Index of Industrial Prosperity, Largely Depend on Engineering Foresight

BY GEORGE OTIS SMITH

NO PROFESSION can claim exemption from citizenship. The constitutional privileges of citizenship also are constitutional obligations, for democracy distributes broadcast duties as well as rights. The engineer cannot dodge his responsibility as a citizen unless he is a conscienceless slacker. Moreover then, a reconnaissance survey of the subject is enough to show that the engineer has the making of a good citizen.

The best American citizen is and always has been he who lives not for today so much as for tomorrow. The pioneer and the volunteer soldier alike choose hardship and danger that there may be a larger measure of comfort and safety in the future. Regard for the future is not only a good definition of civilization but it is a practical kind of simple test to apply to our every-day motives. Are you and I seeking an easy today or a safe tomorrow?

THE ENGINEER LIVES FOR TOMORROW

Now, as I understand the requirements of effective citizenship, the engineer measures up to the specifications: he is forward-looking, he seeks to safeguard the future, and he is constructive by training and habit.

Need I say much to convince you that while to look backward is a large part of the lawyer-statesman's code, to look forward is the professional habit of the engineer? Where could be found better evidence of the vision of the engineer than this city of Washington? Our first President was successively a civil engineer, a military engineer, and a nation builder; and his vision of the America-to-be was so far-reaching that his contribution to city-planning has proved no less adequate than beautiful, even though since he selected this site for the new Nation's capital the population of the United States has increased more than twenty-five fold. Washington the engineer planned for national prosperity and planned well.

The engineer of today also thinks in terms of the future, and because he ever keeps the factor of safety in mind as he works I have chosen to call him an insurance agent of the first magnitude. National prosperity will not satisfy us unless it is backed up with guarantees of permanence, and so it is that I appeal to the engineers to help write this nation-wide endowment policy to run to the benefit of our children's children. My political conviction is that the future of our nation will be largely what you engineers make it, and national prosperity must be worked out in terms of the nation's industry. The public questions of the day are largely matters of production and distribution, and however humanistic or idealistic or altruistic you and I may wish to be, the future of America can be safeguarded only as the plans are drawn up by citizens like you, who trust to the eternal laws of matter and energy rather than to the broken reed of political expediency. This industrial nation needs citizens who will patiently lay solid foundations of fact and erect upon them structures of just action in which there is a factor of safety large enough to safeguard the nation's future prosperity.

The third link that connects the engineer and national prosperity is his constructive habit. It is not enough to know the truth; we have to translate it into action, and herein lies the distinction I draw between science and engineering: what science has discovered engineering must apply. Take this thought over into politics, and the peculiar usefulness of the engineer-citizen becomes almost self-evident. He has no use for the abstract except as the formula or the equation may affect his working plan. The engineering habit of mind is to trust implicitly the constants determined by science and tested by experience, but such faith is only the point of departure—works, not faith, is the engineer's creed, and it is his task in life to construct.

CONSTRUCTIVE METHODS OF THE ENGINEER NEEDED

Now it is just this constructive tendency that we need more of in American politics. In political procedure we use practical engineering simply as a source of figures of speech—the terms "log-rolling" and "wire pulling," "steam roller," and "side-tracking" are suggestive of the world of work, but only suggestive. In keeping our political institutions in running order, the legislative habit is to putty up any cracks in the structure that indicate weakness, without making any inspection of the foundations. And I regret to record my observation that in our legislatures, whether State or Federal, we find too little confidence in experts, possibly because the best of our scientists and engineers are rarely if ever seen or heard by those who control matters of statecraft.

The skillful fakir has had a standing in Washington that he could not get in business circles. However, there has been some improvement in the status of the specialist, though even now a well-displayed sensational news item about a new motor fuel is likely to seem to the legislator a more acceptable basis for a governmental investigation than a well-considered and therefore conservative statement by a chemical engineer of world-wide repute. Nor is the perpetual-motion variety of optimist without a hopeful following. Now it is this condition, this need of light, that demands a larger interest in politics on the part of our engineers, not so much through their great national organizations as in the capacity of individual citizens.

*Address delivered by the Director of the U. S. Geological Survey at the organization conference of the Federated American Engineering Societies, Washington, D. C., June 3, 1920.

Our political temper today puts too much stress on legislation and too little on execution—we do not even reach the stage of a working plan. A new law is offered as the cure-all, whatever the evil that appears, and in devising the new law often the chief feature sought is novelty; at least the remedy proposed must look new. The engineer's methods are different, both in planning his new structures and in putting them to use. To meet new requirements he usually adopts well-tested plans; he naturally seeks the safety of experience. And his structure, once erected, his machinery installed, or his process perfected, he provides for its operation in accordance with his plans. This reliance upon well-tested facts of experience, this attention to the many details which taken together provide the requisite factor of safety, this "seeing the thing through"—are all working habits that the engineer-trained citizen can well take over into his political life.

An Engineer the Best Type of President

As I read American history, I believe that the intensely practical yet altogether progressive leadership of George Washington in affairs of state was possible because he was thoroughly a man of affairs—an explorer and pioneer, a leader in experimental agriculture, an administrator of business, a promotor of interstate waterways, and even a drainage engineer. The earliest precedent that we have here in America, then, is that an engineer makes the best type of President; but most of us can only aspire to be useful private citizens, and more useful if active in public affairs.

The constructive habit is sadly needed in these days of change. The critic is abroad in the land, and he attacks our institutions as the wrecker rather than as the builder. My own conception of political reconstruction is best illustrated by what we have all seen, the erection of a new railroad bridge. The bridge-engineer may well be taken as the type of worker we need in public life. You have seen how, with his plans prepared to the last rivet, he has replaced the small and inadequate and possibly weakened bridge with the larger and stronger and up-to-date structure, and he has done this without interruption to traffic. His plans provide for one essential that is lacking in too many Utopian schemes; the bridge workers build up faster than they tear down, and therefore there is always a bridge to use.

This nation of ours is a going concern; indeed, the rate of our progress is much more rapid than many of our statesmen realize. Changes must be made to meet the demands of the heavier traffic, new structures must be erected, new motive power must be provided, and the effective citizen of today is one who can see ahead of the present moment, who can plan to meet safely the demands of the future, and who has likewise the will to build the needed structures, without tearing down too rapidly the house of state in which we live. I believe the engineer is a citizen of just that type.

Long Ton Made Mandatory in Sale of Coal In District of Columbia

UNDER the weights and measures bill which was recently passed by the House of Representatives it is specifically mandatory that coal must be sold in the District of Columbia only by the long ton, which is 2,240 pounds.

April Domestic Coal and Coke Exports From the United States

APRIL exports of domestic coal and coke from the United States by countries and by customs districts and the bunker coal supplied to vessels in the foreign trade at specified districts, according to figures compiled by the Bureau of Foreign and Domestic Commerce, were as follows:

EXPORTS OF U. S. FUEL IN GROSS TONS

	Coal		
	Anthracite, Tons	Bituminous, Tons	Coke Tons
Austria	.....	1,328	.....
Azores and Madeira Islands	.....	6,684	.....
Belgium	6,546	48,985	1,058
Denmark	.....	55,059	.....
France	.....	209,453	2,174
Gibraltar	.....	9,103	.....
Greece	.....	14,500	.....
Iceland and Faroe Islands	.....	2,510	.....
Italy	15	385,977	.....
Netherlands	.....	162,663	.....
Norway	.....	33,181	.....
Portugal	.....	800	.....
Roumania	.....	516	3,229
Spain	.....	9,358	.....
Sweden	.....	31,527	.....
Switzerland	.....	119,744	.....
Turkey in Europe	.....	5,464	.....
Bermuda	.....	2,906	5
British Honduras	.....	51	.....
Canada	331,485	839,696	34,223
Costa Rica	.....	1,998	.....
Guatemala	.....	362	.....
Honduras	47	149	7
Nicaragua	195	.....	.....
Panama	.....	19,048	8
Salvador	.....	1	9
Mexico	854	17,047	11,592
Newfoundland and Labrador	100	.....	.....
Barbados	25	7,217	.....
Jamaica	.....	2,435	.....
Other Brit. West Indies	196	10,537	.....
Cuba	3,790	118,654	83
Virgin Islands of U. S.	.....	4,069	2
Dutch West Indies	.....	2,430	.....
French West Indies	2,852	4,898	3
Dominican Republic	487	2,966	7
Argentina	.....	115,702	213
Brazil	.....	73,325	.....
Chile	.....	37,160	.....
Ecuador	.....	.....	23
Peru	.....	.....	67
Uruguay	50	11,193	.....
Venezuela	2	3	.....
Other British Oceania	.....	3	.....
Canary Islands	.....	1,622	.....
French Africa	.....	31,403	.....
Egypt	1,000	30,912	.....
Totals	347 644	2,431,639	52,703

FUEL EXPORTS BY CUSTOMS DISTRICTS

	Coal		
	Anthracite, Tons	Bituminous, Tons	Coke Tons
Maine and New Hampshire	166	.....	53
Vermont	870	1,851	219
Massachusetts	27	.....	.....
St. Lawrence	106,990	133,246	1,620
Rochester	29,050	65,800	983
Buffalo	190,968	446,857	21,392
New York	9,637	1,385	2,283
Philadelphia	8,159	111,885	162
Maryland	169	313,109	4,125
Virginia	.....	1,050,749	218
South Carolina	.....	69.242	34
Georgia	.....	15,373	.....
Florida	2	13,543	.....
Mobile	.....	3,000	.....
New Orleans	342	1,413	65
Sabine	.....	.....	81
San Antonio	300	1,541	1,055
El Paso	450	9,536	6,335
San Diego	4	18	1
Arizona	.....	964	4,028
San Francisco	.....	6	84
Washington	.....	1	76
Alaska	.....	6	.....
Hawaii	.....	3	.....
Dakota	.....	2,310	181
Duluth and Superior	318	16,504	1,436
Michigan	192	106,980	8,198
Ohio	.....	66,141	65
Porto Rico	.....	176	9
Totals	347,644	2,431,639	52,703

BUNKER COAL

Customs Districts:	Tons
Maryland	58,006
New York	214,371
Philadelphia	49,946
Virginia	247,011

NEWS FROM THE CAPITOL

BY PAUL WOOTON

Railroad Incomes Increase Under Private Control

A PARTIAL summary issued by the Interstate Commerce Commission records the net operating income of the railroads for March, 1920, the first month after the return to private control, as practically a million dollars greater than that of March, 1919. The figures are: For March, 1920, $10,206,576; for March, 1919, $9,396,592.

Carrier Representatives Ask an Increase in Freight Rates

RAILROAD representatives appearing before the Interstate Commerce Commission at the increased freight rate hearing presented a proposal for an increase of from 24 to 31 per cent in inter-territorial joint rates between the Chicago switching district and shipping points in the West, Southwest, South and Central West.

Rates on bituminous coal from Illinois and Indiana mines would be advanced 27 per cent to all points east the Mississippi river, including St. Paul and Minneapolis; to all points west of this territory, 24 per cent.

Rates on commodities originating at Mississippi river crossings and points west thereof in southern Missouri, Arkansas, Louisiana, Oklahoma, and Texas, and sent to all points except the Pacific coast and intermountain territories would be increased 31 per cent.

Increased freight rates, to take effect at the same time rail carriers are granted higher rates, were asked by steamship companies in a petition presented to the commission. The lines asking these increases are engaged in Chesapeake bay and coastwise transportation. They include the Baltimore Steam Packet Co., Chesapeake Steamship Co., Clyde Steamship Co., Mallory Steamship Co., Merchants and Miners' Transportation Co., Ocean Steamship Co. of Savannah, Southern Pacific Co., Atlantic Steamship Lines and Southern Steamship Co.

Government Fuel Yard Announces Opening Of Bids for 1921 Supplies

CAPTAIN C. A. Dravo, chief of the raw materials branch of the Quartermaster's Corps, in charge of the Government fuel yard, announces that at 10 a. m., July 15, bids on Government coal requirements for 1921 for the stations enumerated below will be received and opened:

Zone 1, on all requirements less coke, smithing coal and wood.

Zone 2, on all requirements less coke, smithing coal and wood.

Zone 3, on the following stations: Tullytown Arsenal, Neville Island, Schuylkill Arsenal, Constructing Quartermaster Terminal, Philadelphia, Pa.; Pier No. 78, Philadelphia, Pa.

Zone 4, on all requirements less coke, smithing coal and wood.

Zone 5, on all requirements less those for Ft. Screven, and less all coke, smithing coal and wood.

Zone 6, on all requirements except coke, smithing coal and wood.

Zone 7, on all requirements except coke, smithing coal and wood, less 3,900 tons of bituminous lump over 2 in. screen for Columbus Barracks, less 10,000 tons of bituminous run-of-mine for McCook Field, and less all requirements at Fort Thomas, Ky.

Zone 8, submit bids only for Park Field, Scott Field, Warehouse No. 1, St. Louis General Supply Depot, Camp Zachary Taylor, and Camp Henry Knox, omitting therefrom coke, smithing coal, and wood requirements.

Zone 16, on all requirements except smithing coal, coke and wood.

Bids opened May 14 for similar requirements have been rejected.

New I. C. C. Members Receive Recess Appointments

PRESIDENT Wilson on June 9 announced recess appointments of Henry Jones Ford of New Jersey, Mark W. Potter of New York and James Duncan of Massachusetts to be members of the Interstate Commerce Commission.

These appointees were nominated some weeks ago, but the Senate failed to act on them. When they take office all vacancies on the commission will have been filled, including the two new places created by the Transportation Act, which increased the membership from nine to eleven.

Modification of Reading Decree Asked

THE Reading Coal Company has asked the Supreme Court to modify the decree recently handed down in the Reading anthracite coal case so as to permit the Reading company to retain stock of either the Philadelphia & Reading Coal & Iron Co. or the Philadelphia Railway Co., and that the Central Railroad of New Jersey be allowed to retain stock of the Wilkes-Barre Coal Co.

The request is based on the injury to minority stockholders and the public and the existence of heavy obligations by the companies which would be affected by the original decree. The Department of Justice has opposed the request on the ground that it would reopen the case and nullify the dissolution decree.

Opportunities for Reducing Mine Costs by Standardizing Equipment*

Uniform Mine-Track Gages and Tipple Clearances Advocated to Reduce Accidents and as Beneficial to Operator and Manufacturer — Co-operation Indispensable to Results — Standards Adopted Should Follow Established Good Practice

BY WARREN R. ROBERTS†
Chicago, Ill.

THE subject of "standardization" of equipment and machinery, whether for use by the coal mining industry, for metal mining, or for any other industry, is one which must be given careful consideration before its advantages will appeal to those who are to use this equipment and machinery, or to those who are to design and manufacture it.

This statement is based on a very considerable experience by the writer for the past two years, during which time he has had occasion to present the subject to various groups of men representing the different branches of the industry to which the improved equipment or machinery was expected to be applied.

Standardization of machinery or equipment should not be attempted simply for the sake of uniformity, but only when standardization will simplify operation and lower the cost of production. To be successful, any program contemplated must show advantages to mine operators, manufacturers of mining machinery and equipment and engineers and builders interested in the coal mining industry.

When the desirability of standardization of any equipment is first mentioned to one who has not yet thought of the matter, it is perfectly natural that certain objections to any attempt to standardize the equipment in which he is interested should first present themselves, and only by a careful discussion of the subject and the pointing out of the definite benefits to be derived from standardization, will he be convinced that the advantages to be gained by standardization of any line of equipment very greatly outweighs any objections to such standardization.

This statement also is based on the experience of the writer, and may be accepted by the gentlemen of this convention, pending the arguments in favor of the standardization which will be presented later. It will be best, however, to first define both the scope and the limitations which any program on standardization should embrace.

It has been found advisable, in planning for the standardization of equipment or machinery for any particular industry, to establish certain general lines of procedure and to begin with the adoption of certain principles which are recognized by both the profession and the industry as good standard practice. Then, having established these fundamental principles and standard practices, we can gradually branch out and bring under standardization certain equipment on which there is the most general favorable opinion towards standardization.

To illustrate what we have in mind, it is conceded by all concerned that in designing a tipple for a mining plant, for instance, there are certain track clearances; certain overhead clearances; certain clearances above the point of dump for over-wind, etc., which are recognized as good practice and for the safety of operation. However, we have all observed many plants on which these well-recognized standards are not followed and due to the violation of which many accidents occur. It would therefore seem to us easy to reach an agreement as to the desirability of the adoption of certain standards along these particular lines, such standards, of course, to follow established good practice as far as is possible.

We believe there are few connected with this industry who would not agree to the desirability of some reasonable standardization of mine track gages. At present we have gages varying 18 in. up to 48 in. Without doubt some standardization of mine track gages would be of great benefit, both to the operator and the manufacturer, as affecting mine cars, mine locomotives and coal cutting machines. To one who has given much thought to this subject, such illustrations could be multiplied indefinitely. These few plainly show the scope which our program of standardization may assume.

Now, to define the limitations: It is important, both on behalf of the operator and the manufacturer, that attempts should not be made to standardize any machinery or equipment just for the sake of standardization which will in any way add expense either to the operation or the manufacture of such machinery, but only when standardization will simplify operation and cheapen production.

BENEFITS THAT WILL ACCRUE TO THE OPERATOR

Having in mind these well established lines of standardization, let us now point out very briefly some of the benefits to accrue to the various interested parties:

Any program of standardization must have in mind first the benefits to accrue to those operating the equipment or machinery to be standardized. Some of these benefits which occur to the writer are as follows:

The adoption of standards of clearance in the tipple structure as mentioned above would not only facilitate operation but lessen expensive accidents, and thereby prevent delays to operation and expensive repairs.

Standardization of mine track gages after once

*Address delivered at the meeting of the Kentucky Mining Institute, Lexington, Ky., June, 1920.

†Chairman of General Committee of Standardization of Mining Equipment, American Mining Congress, Washington, D. C.; president, Roberts & Schaefer Co., Chicago, Ill.

adopted would not only facilitate the use of cars from one mine to another—a very material advantage to an operator owning several mines—but would reduce the cost of his mine cars, his haulage motors, and his coal cutting machines.

The standardization of certain other lines of machinery used by all operators would in time reduce the cost to the purchaser for such standardized machinery. Standardization of any line of machinery very greatly reduces the cost of the repair parts which an operator must carry in stock to insure the continuous operation of his mine. Standardization of the equipment and machinery for a mine not only reduces its cost but lessens the time required to secure such standardized equipment and machinery as against the time required to buy unstandardized machinery.

Benefits to the Manufacturer

The next most interested party in any scheme of standardization is the manufacturer of the equipment or machinery to be standardized, and before such manufacturer can be persuaded to join a standardization movement he must be shown the benefits that will accrue to him. These may be enumerated briefly as follows:

All that has been said regarding the benefits to the operator by the standardization of mine-track gages would apply equally to the manufacturer of mine cars, mine locomotives and coal cutting machines, or any other variety of mine equipment which must run on a mine track.

It is clearly apparent that a standardization of mine-track gages which would enable manufacturers of all such equipment to adopt standards would very greatly reduce the cost to the manufacturer in maintaining plans, patterns and shop room for handling through his factory machines for a few standard gages, as compared with a multitude of machines of various gages.

The very large saving in the cost of manufacture of machinery to a few standards as against miscellaneous sizes cannot be calculated. But any manufacturer will admit that the saving is very material and very beneficial from his viewpoint.

The advantage of standards to the operator in reducing the number of repair parts which must be carried to insure the continuous operation of his mines applies equally to the manufacturer, for the reason that to enable him to furnish repair parts for a multitude of sizes of any line of machinery necessitates his having patterns for all such sizes, and manufacturing and shipping of a few of each of these various sizes instead of a greater number of the few standard sizes.

These are only a few of the advantages to the manufacturer which have occurred to me at this moment, but many others could be mentioned.

Advantages to the Engineer and Builder

It may appear at first thought that any program of standardization of mine equipment and machinery would be a disadvantage rather than an advantage to the engineering profession interested in the designing and building of mining plants. However, such conclusion is incorrect. Any engineering profession worthy to endure must be based on advantageous service rendered to those who pay for such service. Only by making such service of value will it continue to be employed. It is therefore to the interest of engineers and builders of mining plants to promote standardization as outlined above, and thereby indicate to operators not only their desire but their ability to promote his interests at every opportunity that presents itself.

Necessity for Co-operative Program

The above discussion makes it apparent that if any movement looking to the standardization of mining equipment is to be successful it must have the hearty support of men representing the operating end of the mining industry; of men representing manufacturers of equipment and machinery used by the industry, and of engineers and builders interested in this line of work.

There are also several other outside interests which must be consulted and whose co-operation should be secured in connection with the adoption of standards that affect such interests. This applies to the interest railroads may have in tipple clearances or other features of a mining plant as affecting the operation of their roads. Certain states also have laws regulating tipple clearances, some of which laws are unnecessarily severe and should be revised to meet good standard practice. Other states which have no such laws should be encouraged to pass laws establishing the standard practice for such clearances.

A brief statement of the progress which has been made on standardization by certain national technical societies and by certain departments of the U. S. Government may be of interest to this convention. I will therefore outline the work already accomplished by such agencies.

National Engineering Societies

All five of the national engineering societies have for several years been interested in the standardization movement. Certain of these societies have had standing committees which have devoted a great deal of time to studying the question of standardization as applied to their particular profession and the industries in which they were interested. Some of these committees have made a very considerable progress in adopting standards of practice as well as standards for certain equipment and machinery.

However, as progress was made by these national technical societies acting independently it was discovered that often certain equipment and machinery as standardized by one society did not meet the approval of some other society which might be interested in the same equipment or machinery. A careful study of this particular situation led these five national engineering societies to establish an independent agency in which they were all interested.

Somewhat more than a year ago, after a very considerable discussion of the matter, these five national engineering societies established the American Engineering Standards Committee, which was to be a joint agency representing all of these engineering societies, so far as standardization was concerned. In establishing this joint agency it was agreed by the founder societies that standards adopted by any one of these societies should be referred to this joint committee for approval and adoption, after which it would become a "national standard."

This was a most excellent progressive movement and has given great impetus to standardization. At the same time it will safeguard the movement and avoid duplications and conflicts in adopting standards.

The U. S. Government has long been interested in the

adoption of standards. Many years ago a Bureau of Standard Weights and Measures was established, which has gradually grown into the present National Bureau of Standards, operating under the Department of Commerce. This bureau has very extensive laboratories with ample equipment and an able staff of engineers and scientists for carrying on the investigations, making tests and otherwise effecting standardization.

During the late war, by the advice of and under the direction of General Goethals, Assistant Chief of Staff, a consolidation of all the purchase and supply agencies of the War Department was made. This consolidation became a necessity as the war progressed, to enable the War Department to supply the increasing demands of the army.

Soon after this consolidation became effective, in the spring of 1918, many difficulties arose in trying to harmonize the requisitions furnished this now consolidated purchasing agency from the various corps and divisions of the War Department. To harmonize and co-ordinate these requisitions and the specifications accompanying them it became necessary to establish a branch in the purchasing agency for the standardization of the requisitions and accompanying specifications. The writer had charge of this branch of the service from the time it was established until the close of the war.

Standardization of Supplies Used by Army

The advantages and economies that resulted from this standardization of the Government's specifications for many of the largest commodities used by the army was very great. Production and transportation also were facilitated by the methods of standardization as adopted. These facts are recorded here simply to indicate the advantages of standardization as applied to this great enterprise of carrying on the war.

At the time the above-mentioned American Engineering Standards Committee was established by the national engineering societies the War Department and the Navy Department were asked to join this "committee." After a careful investigation and on the advice of the writer these two governmental departments, as well as the National Bureau of Standards, joined this committee and became active agents in promoting its work.

During the past year other engineering, technical and industrial societies have been invited to join this standardization movement as represented by the American Engineering Standards Committee, and several such societies, including the American Mining Congress, have joined in the work of this committee.

Committees Working Out a Program

It may be of interest to the gentlemen of this convention to learn that the American Mining Congress has during the past year been carrying on an extensive program for the standardization of mining equipment. To accomplish this work two general committees were organized, one representing the coal-mining industry and one representing metal mining.

These general committees in turn established subcommittees to take charge of and direct the standardization for certain classifications of machinery and equipment. There are seven such sub-committees working under the general committee, standardizing coal-mining equipment and machinery. These sub-committees are composed of men representing the coal operators, the manufacturers of coal-mining equipment and machinery, mining engineers, etc. Several of these sub-committees have made very considerable progress in their work and their reports will be presented through the general committee at the annual convention of the American Mining Congress next November.

It is hoped that the presentation of this subject to your convention will awaken a lively interest in the standardization program by your members. Any information desired on the subject may be secured by addressing the writer, who is chairman of the general committee, having charge of this standardization work on behalf of the coal-mining industry.

Dock Interests Seek Government Help To Move Coal on the Lakes

REPRESENTATIVES of dock interests at the head of the Great Lakes are in Washington seeking relief from the situation which is resulting in an alarmingly small movement of Lake coal. The representatives point out that shipments during April were 700,000 tons below normal, while May forwardings are expected to be fully 3,500,000 tons less than normal.

Official attention is being called to the fact that grave danger exists of not having enough coal in the Northwest to meet next winter's needs. Because of the high prices which are being paid for coal, the tendency is to distribute it directly to the consumers rather than store it at the docks.

Trade of the United States with the Orient Makes Giant Strides

THE share of United States in the rapidly growing trade of the Orient has increased from less than 10 per cent in the year before the war to over 20 per cent in 1919. The total trade of the Orient, including in this term Asia and the adjacent islands, aggregated, says a statement of The National City Bank of New York, about $5,200,000,000 in 1913, of which about $475,000,000 was with the United States; but in 1919 it had advanced to $8,750,000,000, of which $1,880,000,000 was with the United States.

While the general trade of the Orient nearly doubled during the war period, that with the United States quadrupled. Our exports to Asia and the Philippines, which in 1913 amounted to only $158,000,000, were in 1919 $775,000,000, and in the fiscal year about to end will exceed $800,000,000. Our imports from the section in question, which amounted to only $300,000,000 in 1913, were $1,100,000,000 in 1919 and probably will aggregate $1,200,000,000 in the fiscal year ending with next month.

New York Skyscraper to Use Oil Instead of Coal Fuel

BELIEVING that oil is superior to coal as fuel, the owners of the Singer Building in New York are about to adopt oil for providing steam. Two of the five boilers in the steam plant have already been converted and the other three will be changed soon, it is understood. About one hundred barrels of oil will be needed daily for the building, it is believed, and a contract has been let for supplying oil needed the first three years.

Expect Commerce Commission to Give Data on Assigned Cars

Correspondence Discloses Adverse Effect on Miners Earnings and Other Evils Resulting from Inequitable Carrier Distribution

JUST before adjournment an ineffectual effort was made to secure action in each house in questioning the Interstate Commerce Commission in regard to assigned cars. The measure passed the Senate, but failed of passage in the House. It is expected, however, that the information called for will be furnished by the Interstate Commerce Commission in compliance with the Senate resolution:

"Whereas the railroad companies are making assignments of freight cars; and

"Whereas the said railroad companies, or a part of them, are making such assignment in a manner alleged to be discriminatory and prejudicial to the common public welfare; and

"Whereas authority for making assignments of cars by said railroad companies is predicated upon an order of the Interstate Commerce Commission, dated April 15, 1920, and entitled 'Notice to carriers and shippers,' and is in the following words and figures:

" 'The commission recommends that until experience and careful study demonstrate that other rules will be more effective and beneficial, the uniform rules as contained in the Railroad Administration's Cars Service Section Circular CS31 (revised) be continued in effect, except that rule 8 as contained in said circular should be amended to read:

Directed to Cite Authority for Order

" ' "Private cars and cars placed for railroad fuel loading in accordance with the decision of the Interstate Commerce Commission in RR. Com. of Ohio et al. v. H. V. Ry. Co., 12 I. C. C., 398, and Traer v. Chicago & Alton Railroad Co. et al., 13 I. C. C., 451, will be designated as 'assigned' cars. All other cars will be designated as 'unassigned' cars" ':

"Therefore be it resolved, That the Interstate Commerce Commission be directed to inform the Senate upon what authority, if any, said order was issued."

In that connection correspondence was introduced in the record of the proceedings, the first a letter addressed to Representative Roscoe C. McCulloch by John Moore, president of the Ohio Mine Workers, and Walter J. James, legislative representative of the United Mine Workers of America, as follows:

"On behalf of all the bituminous miners of the United States, particularly the miners of the State of Ohio, we desire to call your attention to the fact that a large number of miners and their families in every coal-mining district of Ohio are in a deplorable condition because of their lack of work, due primarily, as we understand it, to a recent order issued by the Interstate Commerce Commission which gives preferential car assignment to certain mines, making it possible for those miners to work almost continuously, while the miners employed at other mines are working, in many cases, less than 25 per cent time.

"The miners, as a rule, do not measure their earnings by the amount of money that is in their pay envelope, but rather by comparison with the earnings of their neighbors, and when the men working in one mine are making $2 more than the men working in some other mine it creates a condition of dissatisfaction and unrest at both mines. The man earning the most money is usually more dissatisfied than the fellow earning the small amount. This condition is prevalent throughout all the bituminous mining districts, and no doubt will result disastrously unless some correction is made.

"The Bituminous Coal Commission, created and appointed by the President of the United States, made the recommendation in their report that the preferential car assignment be discontinued, as it was discriminatory to the mine operator and to the coal miners, as well as to the general public. The miners in accepting the award of the commission believed that this recommendation, with the other recommendations, would be complied with; and no doubt would have been had it not been for the order of the Interstate Commerce Commission to the contrary.

Considered Preferential Treatment Abolished

"Our understanding of paragraph 12, section 402, of the Esch-Cummins Act is that the preferential car assignment was forever abolished, and we ask that you join with other Congressmen from our State in passing a resolution, or by some other legislative means correct the abuses as complained of above, making it so plain that the Interstate Commerce Commission will be compelled to recall the recent order."

The second communication, also addressed to Representative McCulloch, was from C. H. Bryson, secretary of the Federated Boards of Trade of Southeastern Ohio, as follows:

"Our commercial bodies wish to direct your attention to violations of the provisions of a recent act of Congress by the present management of the railroads under an order of the Interstate Commerce Commission. The violations are of paragraph 12, section 402, of the Transportation Act.

"The practice now engaged in by the railroads in violation of this act is the inequitable distribution of cars known as the assigning of cars for the loading of railroad fuel, which cars so assigned are not being distributed to mines on the basis of each mine's ratable share of cars.

"Many evils result from this practice; in fact, nothing has done so much injury to the people generally in the mining regions, and nothing has caused so much discontent as the assigned-car practice. It is altogether unfair and unjust.

Unfair Discrimination Due to the Practice

"It gives to some of the men nearly full-time employment and pay, while others are permitted to work but one or two days per week. Much suffering as a result is inevitable. It makes all of the citizens—laborers, business men, and others—of one town or community prosperous while an adjoining town or community dependent upon mines not favored with an assigned-car supply is barely able to exist. It keeps the men constantly moving from one town to another in the hope of securing work at a mine favored by the railroads, only to find perhaps after securing such employment that the railroad-fuel contract and consequently the car supply had been shifted to some other mine. Such intolerable conditions cannot be allowed to continue.

"We happen to be located at the source of the trouble,

and consequently are the first to suffer. But the suffering will soon be extended to those dependent upon us for next winter's coal supply.

"In this connection we are advised that 30,000,000 tons of coal must go up by way of the Lakes to the people of the Northwest for next winter. This amount is essential to their comfort under normal winter conditions and must go during the navigation season of seven months.

"Due to lack of cars but 1,500,000 tons, or 5 per cent of this amount, has been shipped to date, whereas 6,000,000 tons, or 20 per cent, of the amount should have been shipped.

INSUFFICIENT COAL CAR SUPPLY IN WINTER

"While the railroads are getting their own fuel under the assigned-car practice, they are not furnishing cars to transport the winter fuel supply of the public. Those coal cars which should be carrying the public's coal are being used for transporting automobiles and various other articles and materials which produce more revenue for the carriers than the transportation of coal would produce.

"The assigned-car practice has received adverse comment by every individual and group not interested in railroad revenues who have studied the question deeply. This includes the Bituminous Coal Commission, the Railroad Administration, the Fuel Administration, and both labor and commercial organizations. A perusal of of the history of the practice shows it to have been universally condemned.

"The writer has interviewed personally many members of both the House and the Senate who were intimately connected with all the legislative activities leading up to the passage of the act referred to. Without one single exception or shadow of doubt in the minds of any of them, all are agreed that it was the intent of Congress in this legislation to get rid of the assigned-car practice and its many evils. A correct interpretation of the language of the act is in accord with that intent.

"The Interstate Commerce Commission refuses to interpret the language of the act correctly, and therefore refuses to carry out the clear and express intent of Congress. We can be heard fairly in the matter only by you who have undertaken to remedy these evils. What is to be done?"

Retail Prices of Food Made Record Increase in April

ACCORDING to reports received by the Bureau of Labor Statistics of the U. S. Department of Labor from retail dealers in fifty-one cities, the average family expenditure for twenty-two articles of food increased more than 5 per cent in the month from March 15 to April 15. This is the largest percentage increase in any one month except April, 1917, immediately following the entrance of the United States into the great war, when the increase was 9 per cent over March, 1917, prices.

The cost of food in April, 1920, reached the highest point yet attained, being 5 per cent higher than the heretofore record high point of January, 1920. The figures for April, 1920, show an increase of 16 per cent as compared with April, 1919, and an increase of 115 per cent as compared with April, 1913.

Car Service Commission Issues Rules Governing Use of Coal Cars

W. C. KENDALL, chairman of the American Railroad Association's Commission on Car Service, on June 2, 1920, issued the following, designated as circular CCS-33, to railroads:

"The production of bituminous coal during April and May has been averaging two and one-half million tons per week less than what is necessary for the country's adequate fuel supply and particularly to permit a sufficient movement up lake to the Northwest and ocean and rail to New England to protect next winter's consumption in those sections. The average placement on bituminous coal loading roads has been approximately 50 per cent.

"In order that coal production may be increased and discrepancies in placement as between commodities made up it is necessary that:

"1. Railroads must distribute available coal cars for loading coal to a minimum of 50 per cent of actual requirements before distributing coal cars for loading other commodities.

"2. Railroads may distribute available coal cars for loading other commodities requiring open cars to an extent not exceeding 50 per cent of actual requirements based on ability to load and ship, and any surplus as available shall be applied to increase the supply for coal loading.

"3. Railroads having no coal loading will restrict the supply of coal cars for loading of other commodities requiring open cars to an extent not exceeding 50 per cent of actual requirements based on ability to load and ship. Foreign cars used in this manner must be loaded strictly in accordance with car-service rules, and must not be back hauled for loading.

"4. Coal-carrying cars must not be used for the loading of automobiles and other commodities which can be transported in box cars and other types of equipment."

Supreme Court Denies Peterson Petition for Mandamus Against Judge Hand

IN AN opinion delivered by Justice Brandeis, the U. S. Supreme Court on June 1 denied the petition of Walter Peterson, as receiver of the Interstate Coal Co., Inc., for a writ of mandamus against Judge Augustus N. Hand of the U. S. Court for the Southern District of New York.

Peterson had brought an action in the latter court against Arthur Sidney Davison to recover a balance of $21,014.43, alleged to be due for coal sold and delivered. The answer substantially admitted the items set forth in the schedule filed by the plaintiff, but denied that it represented a full account of the transactions between the parties, alleging that there were other deliveries of coal and other payments which the defendant had made, and also that he was entitled to additional allowances. It further alleged, by way of counter claim, that the plaintiff was indebted to him for failure to perform its contracts for coal in the sum of $9,999.10. In response to a demand for a bill of particulars, defendant filed schedules containing more than two hundred items which he proposed to establish by way of defense.

Upon motion of defendant and against the objection of plaintiff, Judge Hand appointed an auditor with in-

structions to make an investigation of the facts with a view to simplifying the issues for the jury which was to make final determination of all issues of fact.

Thereupon application was made to the Supreme Court for leave to file a petition, praying that Judge Hand and the auditor named be prohibited from proceeding under the order appointing him and that Judge Hand, or such other judge who may at the time hold the trial term of that court, be commanded to restore the case to the trial calendar and that the same be tried in the regular way.

Justices McKenna, Pitney and McReynolds dissented.

Committee Chairmen of Mining Congress To Discuss Program for Year

COLONEL WARREN R. ROBERTS, chairman of the coal mining section of the Standardization Committee, and Chairman Mitke, of the metal mines division of the American Mining Congress, expect shortly to call a meeting of all sub-committee chairmen of both coal and metal mining committees in Denver to discuss the program for the year in connection with the reports to be made at the twenty-third annual convention at Denver during the week of Nov. 15 next.

Movements of Coal and Coke by Fourteen Leading Railroads During February 1919 and 1920

SHIPMENTS of coal and coke carried over fourteen leading railroads during February, 1919 and 1920, and during the two months ending with February for the same respective years, compiled by the division of statistics of the U. S. Department of Commerce, are as follows:

Coal and Coke Shipments for February, 1919, and February, 1920, Compared

Classes and Railroads	Originating on Line		Received from Connections		Total	
	1919	1920	1919	1920	1919	1920
For Revenue Only	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons
Anthracite:						
Buffalo, Rochester & Pittsburgh	.....	.....	13,178	11,593	13,178	11,593
Buffalo & Susquehanna	.....	.....	254	570	254	570
Chesapeake & Ohio	381	397	2,616	781	2,997	1,178
Erie	449,229	515,094	161,149	215,340	610,378	730,434
Huntingdon & Broad Top Mountain	.....	.....	97	45	97	45
Pennsylvania	328,604	473,920	234,379	510,579	562,983	984,499
Pittsburgh & Lake Erie	.....	.....	.....	333	.....	333
Pittsburg, Shawmut & Northern	.....	.....	146	2,788	146	2,788
Virginian	159	255	149	.....	308	255
Western Maryland	.....	.....	20,699	31,903	20,699	31,903
Totals	778,373	989,666	432,667	773,932	1,211,040	1,763,598
Bituminous:						
Buffalo, Rochester & Pittsburgh	428,504	515,492	47,422	9,009	475,926	524,507
Buffalo & Susquehanna	96,472	139,794	108	.....	96,580	139,791
Chesapeake & Ohio	1,152,634	1,790,268	172,196	225,974	1,324,830	2,016,244
Erie	20,925	40,732	515,393	819,129	536,318	859,862
Huntingdon & Broad Top Mountain	40,658	59,443	719	60	41,377	59,501
New York Central (Buffalo and east)	389,909	531,467	.....	.....	389,909	531,463
Norfolk & Western	1,327,873	1,529,673	170,181	256,762	1,498,054	1,786,435
Pennsylvania	2,627,106	2,765,878	620,867	640,281	3,247,973	3,406,159
Pittsburgh & Lake Erie	336,182	443,952	422,817	618,483	758,999	1,062,435
Pittsburg & Shawmut	118,864	206,791	.....	.....	118,864	206,791
Pittsburg, Shawmut & Northern	27,237	59,749	16,769	36,406	44,006	96,155
Virginian	205,504	373,106	36,237	40,438	241,741	413,544
Western Maryland	167,637	295,193	455,219	649,256	622,856	944,449
Totals	6,939,505	8,751,538	2,457,928	3,295,798	9,397,433	12,047,336
For Company Fuel						
Anthracite:						
Buffalo, Rochester & Pittsburgh	.....	.....	.....	464	.....	464
Erie	13,603	16,567	.....	1,206	13,603	17,773
Pennsylvania	7,429	11,416	410	5,043	7,839	16,459
Totals	21,032	27,983	410	6,713	21,442	34,696
Bituminous:						
Buffalo, Rochester & Pittsburgh	47,817	60,124	230	89	48,047	60,213
Buffalo & Susquehanna	7,185	9,409	.....	.....	7,185	9,409
Chesapeake & Ohio	116,178	189,254	.....	.....	116,178	189,254
Erie	72,755	134,712	151,395	177,124	224,150	311,836
Huntingdon & Broad Top Mountain	8,865	.....	.....	1,833	8,865	1,833
New York Central (Buffalo and east)	91,228	160,181	.....	.....	91,228	160,181
Norfolk & Western	231,076	177,489	39,443	45,783	270,519	223,272
Pennsylvania	661,338	885,564	34,003	79,861	695,341	965,425
Pittsburgh & Lake Erie	22,959	25,217	27,068	33,056	50,027	58,273
Pittsburg & Shawmut	2,491	3,341	.....	.....	2,491	3,341
Pittsburg, Shawmut & Northern	2,254	6,088	.....	.....	2,254	6,088
Virginian	24,861	37,207	199	1,352	25,060	38,559
Western Maryland	19,458	49,863	26,285	5,176	45,743	55,039
Totals	1,308,465	1,738,449	278,623	344,274	1,587,088	2,082,723
Coke for Revenue and Fuel						
Buffalo, Rochester & Pittsburgh	23,997	16,612	23,791	39,329	47,788	55,941
Buffalo & Susquehanna	28,559	30,998	.....	.....	28,559	30,998
Chesapeake & Ohio	49,309	35,632	9,091	18,423	58,400	54,055
Erie	12,036	15,498	29,354	53,906	41,390	69,404
Huntingdon & Broad Top Mountain	963	7,257	696	2,333	1,659	9,590
Norfolk & Western	121,225	87,998	13,912	24,060	135,137	112,058
Pennsylvania	570,320	532,009	130,035	147,676	700,355	679,685
Pittsburgh & Lake Erie	46,671	37,859	418,561	417,980	465,232	455,839
Virginian	.....	.....	32	.....	32	.....
Western Maryland	3,279	3,505	36,492	20,572	39,771	24,077
Totals	856,359	767,368	661,964	724,279	1,518,323	1,491,647

Coal and Coke Shipments for Two Months Ending February

Classes and Railroads	Originating on Line 1919	Originating on Line 1920	Received from Connections 1919	Received from Connections 1920	Total 1919	Total 1920
For Revenue Only	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons
Anthracite:						
Buffalo, Rochester & Pittsburgh	.....	.....	26,908	25,936	26,908	25,936
Buffalo & Susquehanna	.....	.....	433	3,016	433	3,016
Chesapeake & Ohio	911	1,701	5,372	4,981	6,283	6,682
Erie	1,160,637	1,161,731	393,329	478,623	1,553,966	1,640,354
Huntingdon & Broad Top Mountain	.....	.....	97	101	97	101
Pennsylvania	820,380	919,596	657,293	950,055	1,477,673	1,869,651
Pittsburgh & Lake Erie	.....	.....	48	333	48	333
Pittsburg, Shawmut & Northern	.....	.....	1,582	4,913	1,582	4,913
Virginian	429	455	248	100	677	555
Western Maryland	.....	.....	53,679	58,089	53,679	58,089
Totals	1,982,357	2,083,483	1,138,989	1,526,147	3,121,346	3,609,630
Bituminous:						
Buffalo, Rochester & Pittsburgh	1,161,148	1,179,010	75,723	22,176	1,236,871	1,201,186
Buffalo & Susquehanna	213,798	295,743	296	.....	214,094	295,743
Chesapeake & Ohio	2,954,314	4,109,314	351,703	426,894	3,306,017	4,536,208
Erie	52,164	81,492	1,376,379	1,704,086	1,428,543	1,785,578
Huntingdon & Broad Top Mountain	119,916	145,976	833	2,205	120,749	148,181
New York Central (Buffalo and east)	998,586	1,201,354	.....	.....	998,586	1,201,354
Norfolk & Western	2,638,676	3,297,642	383,090	519,589	3,021,766	3,817,231
Pennsylvania	5,996,448	6,138,239	1,436,168	1,378,082	7,432,616	7,516,321
Pittsburgh & Lake Erie	829,875	1,001,977	1,024,254	1,370,558	1,854,129	2,372,535
Pittsburg & Shawmut	319,204	427,981	.....	.....	319,204	427,981
Pittsburg, Shawmut & Northern	69,711	128,979	45,537	76,842	115,248	205,821
Virginian	586,419	865,179	93,958	101,896	680,377	967,075
Western Maryland	454,776	728,361	1,128,634	1,533,358	1,583,410	2,261,719
Totals	16,395,035	19,601,247	5,916,575	7,135,686	22,311,610	26,736,933
For Company Fuel						
Anthracite:						
Buffalo, Rochester & Pittsburgh	.....	.....	.....	1,089	.....	1,089
Erie	26,077	38,009	.....	2,023	26,077	40,032
Pennsylvania	16,273	29,755	5,563	11,741	21,836	41,496
Totals	42,350	67,764	5,563	14,853	47,913	82,617
Bituminous:						
Buffalo, Rochester & Pittsburgh	126,215	135,057	773	137	126,988	135,194
Buffalo & Susquehanna	15,384	21,287	.....	.....	15,384	21,287
Chesapeake & Ohio	284,204	399,368	.....	.....	284,204	399,368
Erie	195,471	252,967	407,746	428,631	603,217	681,598
Huntingdon & Broad Top Mountain	10,901	.....	.....	3,268	10,901	3,268
New York Central (Buffalo and east)	270,541	314,466	.....	.....	270,541	314,466
Norfolk & Western	435,517	420,281	75,602	103,135	511,119	523,416
Pennsylvania	1,796,501	1,620,808	74,080	181,760	1,870,581	1,802,568
Pittsburgh & Lake Erie	46,183	66,281	59,911	60,761	106,094	127,042
Pittsburg & Shawmut	7,574	7,684	.....	.....	7,574	7,684
Pittsburg, Shawmut & Northern	5,820	10,781	.....	.....	5,820	10,781
Virginian	55,830	77,582	810	2,554	56,640	80,136
Western Maryland	44,995	110,814	74,559	9,158	119,554	119,972
Totals	3,295,136	3,437,376	693,481	789,404	3,988,617	4,226,780
Coke for Revenue and Fuel						
Buffalo, Rochester & Pittsburgh	46,828	33,265	70,946	67,067	117,774	100,332
Buffalo & Susquehanna	53,784	63,184	37	39	53,821	63,223
Chesapeake & Ohio	102,787	74,204	17,375	26,584	120,162	100,788
Erie	25,667	55,296	57,989	89,133	83,656	144,429
Huntingdon & Broad Top Mountain	7,732	10,911	2,230	13,543	9,962	24,454
Norfolk & Western	286,463	177,914	34,170	44,913	320,633	222,827
Pennsylvania	1,265,973	1,183,676	312,270	298,775	1,578,243	1,482,451
Pittsburgh & Lake Erie	108,220	81,331	981,886	842,405	1,090,106	923,736
Virginian	.....	.....	32	.....	32	.....
Western Maryland	8,680	6,789	84,023	35,283	92,703	42,072
Totals	1,906,134	1,686,570	1,560,958	1,417,742	3,467,092	3,104,312

NOTE.—No report was received from the Baltimore & Ohio R.R.

Favors Acquisition of Tract for Coal Experiments

DIRECTOR MANNING, of the Bureau of Mines, has recommended Government acquisition of a tract of 77 acres covering a coal mine near Pittsburgh at a cost of $19,000, for coal experiments, so that the experimental station at that point may not be disturbed by possible future mining, although the bureau does not plan to mine coal. At this station coal dust from all parts of the country is tested to determine its explosibility.

Based on experience of the government fuel yard in the District of Columbia, which supplies government departments with coal, Director Manning favored centralized coal buying for the entire government service throughout the country under one agency. Chairman Good of the committee said there was merit in the suggestion. The fuel yard had saved the government from 39½ to 70 cents a ton on the 300,000 to 350,000 tons used annually by government departments in Washington, and had reduced business of private dealers about 20 per cent.

Director Manning said the bureau would co-operate with State or municipal governments, corporations, associations or individuals on scientific work with the understanding that the results of experiments should be for the benefit of the general public. At present the bureau is co-operating with thirty-three agencies, among them the Sinclair Refining Co., on fuel development with a view of saving oil and bringing about more efficient use of coal.

Advocates Mine Exhibit in Celebration of Sesqui Centennial of Independence

REPRESENTATIVE DARROW, of Pennsylvania, has introduced a bill favoring the celebration of the 150th anniversary of the signing of the Declaration of Independence by holding an international exhibition of arts, industries, manufactures and products of the mine, soil and sea, in Philadelphia, in 1926.

Kentucky Mining Institute Meets at Lexington

Important Moves Made to Increase Interest and Value of the Meetings—Provision for Company Membership Expected to Strengthen Organization—Well-Filled and Skillfully-Contested First-Aid Meet Features the Conclave

MEETING for the first time in more than a year, the Kentucky Mining Institute gathered at Lexington, Ky., on June 4 and 5 for reorganization on a peace basis and for a grand get-together convention. The meeting was well attended, particularly by the operators from the eastern part of the State. The two days were filled with the meeting and the first-aid meet in the afternoon of the last day.

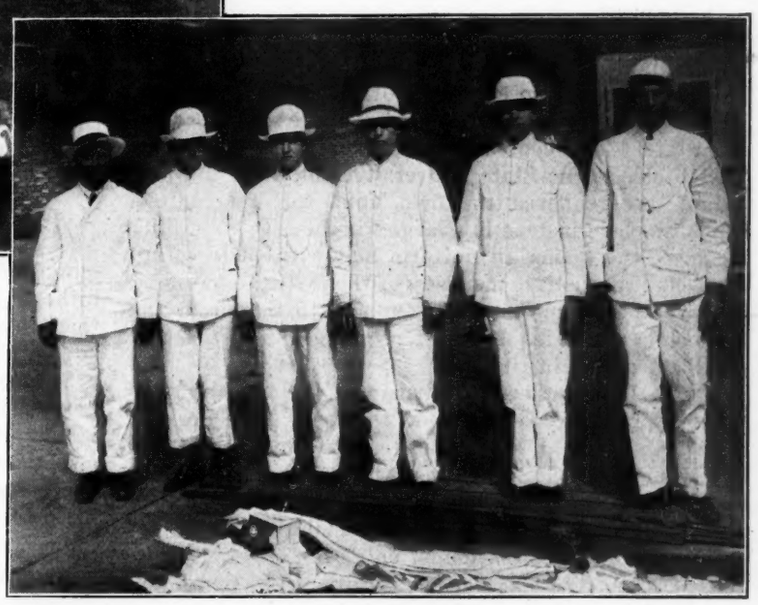
Several important changes were made in the organization that are certain to strengthen the work and increase interest on the part of the members, as well as add to the membership. The position of secretary was made a salaried one, dues were increased from $3 to $5 per year, and provision was made for company memberships, without voting power, each at $10 per year. These steps will place the institute on its feet financially and with a paid secretary able to devote more time to the work than any volunteer has so far been able to give, the membership can and will be materially increased and the operators in the State be kept informed of the activities of their institute.

The opening meeting on Friday, June 4, was well attended. Mr. George Eshrick, Jr., fuel engineer with the International Coal Products Corporation of New York, read a paper describing the Smith process of low-temperature distillation of coal and the briquetting of the product. In his paper Mr. Eshrick pointed out the waste in burning raw coal, indicated that the demand for smokeless coal was in excess of the combined production of the anthracite and smokeless fields and informed his audience that from high-volatile Kentucky coal a smokeless product can be prepared by this process that will have all the good points of the present well-known brands of low-volatile fuel. The vision of plants at the coal mines in Kentucky producing hard coal briquets, with benzol, tar and ammonia as side lines, appealed to the operators present and the paper was the subject of much discussion and the speaker was called upon to answer many questions.

Mr. Herbert M. Wilson, the director of inspection and safety of the Associated Companies, read a paper on the practical operation of coal-mine compensation insurance under the Kentucky law. The paper, which will be found in this issue of *Coal Age*, answered the questions of many regarding the operation of the law and showed by examples from the records of cases in Kentucky the

First-Aid Contest

Owing to a severe rain the Kentucky Mining Institute authorities decided that the Stoll Athletic Field would not be dry enough for the contest of the following day and so decided to use an empty tobacco warehouse for the purpose, an excellent idea which if followed regularly would relieve much anxiety from the minds of all concerned in such events.



Here Are the Winners

The Pioneer Coal Co. of Kettle Island took the honors with a team comprising J. D. Wyatt, captain; H. E. Grace, Joseph Lowe, Wesley Lowe, J. G. Gross and Dewey Brock. This team received the engraved plaque which is the leading prize of the Kentucky Mining Institute's annual event. Its rating was 99.2 per cent.

advantages in decreased cost of insurance of the inspection and help offered by the inspection service of the insurance companies. Cost of insurance was shown to be in direct ratio to the risk offered by the mine, and improvement in mining practice and observance of the rules of safety progressively reduces the cost.

General disappointment was felt at the unavoidable absence of John Callahan, of the National Coal Association, and George Cushing, of the Wholesale Coal Dealers' Association. Mr. Callahan was to have talked on the new Transportation Act, but was called to Chicago for consultation on the subject of assigned cars. Mr. Cushing sent his paper on the history of the coal industry and although the absence of the author was regretted the paper was read and enjoyed by all present. The paper was printed in the last issue of *Coal Age*.

The evening of the first day was spent in a business session and smoker at the Phoenix Hotel. The last session of the institute was in the morning of the 5th. Two papers were read, one by C. E. Lesher, editor of *Coal Age*, on "Some Wage Problems" and the other on the "Use of Combination Battery and Trolley Mine Locomotives," by John B. Hicks, assistant superintendent, Consolidation Coal Co., Jenkins, Ky. Both papers will be reprinted in *Coal Age*.

First-Aid Contest a Success

No Kentucky State Institute meeting would be complete without a first-aid contest. The contest, held June 5, was highly successful in point of interest, number of contesting teams and excellence of the work of the men. Eight teams were present, all from the eastern part of the State. The contest was originally scheduled for Stoll Field, at the State University, but rains the preceding day rendered the field unfit for the contest, which was held instead in a large warehouse. Preceding the meet the teams, in uniform and with their equipment, and the visiting members of the institute gathered to have their photograph taken and to march to the gathering place, led by Prof. Norwood, newly-elected president of the institute.

Mr. G. E. Daugherty, chairman of the first-aid committee, pronounced the meet the best he had ever attended. Each of the eight teams competing in the five events made a total of more than 90 per cent. The teams in the order of their record were as follows:

First prize, Pioneer Coal Co., Pineville, Ky., 99.2 per cent; second prize, Consolidation Coal Co., mines 204-205, Jenkins, Ky., 98.8 per cent; third prize, Consolidation Coal Co., mines 212-213, McRoberts, Ky., 97.4 per cent; fourth prize, Pond Creek Coal Co., Stone, Ky., 97.2 per cent. The remaining four teams in order were: Kentucky Coke Co., Echols, Ky., 96.1 per cent; Edgewater Coal Co., Hellier, Ky., 95 per cent; First Creek Coal Co., Blue Diamond, Ky., 94.2 per cent; Lechies Collieries Co., Aflet, Ky., 93.6 per cent.

The winning team was awarded the engraved plaque of the Kentucky Mining Institute, which is awarded each year to the winning team; the Phoenix Hotel Cup, which will become the property of the team winning first place two years in succession; bronze medals from the American Red Cross and medals from the National Safety Council. The second team received fountain pens for each member of the team. Lamps were awarded to the members of the teams standing third, fourth, fifth and sixth. Pins were given all contestants.

More than usual interest centered in the selection of the officers of the institute for the coming year. On every hand H. M. Ernst and C. W. Strictland, president and secretary-treasurer respectively the past year, were praised and commended for their faithful and excellent work. Both, however, begged off from another year and the nominating committee made the happy choice of Prof. C. J. Norwood for president and Mrs. Elizabeth C. Rogers for secretary-treasurer. In making the nomination the chairman of the committee said that presidents had been selected from the north, east, south and west, but it remained this year to take a man from the center.

Prof. Norwood has been identified with mining in Kentucky for many years and as chief of the Department of Mines is well and favorably known to every mining man in the state. Mrs. Scott has been recorder for every meeting held by this institute. She knows the work, is popular with the members and by reason of her location in Lexington, home of the new president, will be able to render the best possible service.

The desirability of better attendance and more lively interest in the institute on the part of mine superintendents and foremen was discussed, and as a result steps were taken to encourage district meetings of the institute at which these men could attend without great loss of time from their work. Vice presidents were elected with the particular purpose in view of encouraging this development. The new vice presidents are A. G. Spellman, Earlington, Ky.; A. L. Ware, Hazard, Ky.; Joe Cane, Stearns, Ky.; W. E. Davis and W. H. Davis, both of Lexington, Ky.; C. W. Conner, Esco, Ky., and J. T. Bradley, Pineville, Ky.

Strike Idleness Extends in Thacker Field

MORE mine workers in the Thacker field have been induced by the United Mine Workers to join the union. As many of these are at plants which have not hitherto had locals and as the men as fast as they join the union are called upon to cease working and obey the admonition, mines are continually closing down.

So many mines are now affected that the weekly loss from lack of man power and because of idleness at mines is running above 50,000 tons. The purpose of the organizers in closing down the mines is to make the operators enter into negotiations with a view to recognizing the United Mine Workers. Thus far there is no indication that the operators will do this.

So far the campaign for the organization of the Thacker field has not only failed to be of any advantage to the miners but, contrariwise, has been detrimental to their welfare in that it has resulted in a total loss of income among all the miners who have joined the union. It is claimed by the operators that the rate of wages paid is higher than the rate paid in union fields.

In connection with the organization of the Thacker field the United Mine Workers are also attempting to organize Kentucky mines across Tug River from the Williamson field and reports of intimidation in connection with such organization work are not uncommon.

Coal Road Declares Extra Dividend

THE Mahoning Valley Coal Railroad Co. has declared a $15 extra dividend on the common stock, payable July 1 to stock of record June 21. This is in addition to the regular semi-annual dividends of $5 on the common and $1.25 on the preferred stocks.

Discussion by Readers

Edited by
James T. Beard

Posting Entries and Roads

BEING interested in the Nova Scotia coal fields, I desire to add a word to the excellent reply given to the inquiry of "Mac," *Coal Age*, April 29, p. 874.

Some years ago, while I was assistant to the general mining superintendent of one of the large coal companies operating in Nova Scotia, I had reason to study the timbering problem in that coal field. The cost of this timbering was excessive and the amount of broken timber was beyond all reason.

In order to arrive at an intelligent conclusion, I examined the working places in each of the mines operated by our company. I took exact measurements, made sketches and noted particulars in respect to the timbering in every place visited. This field was working a submarine area, which had been developed to a distance, under the sea, of about two miles out from the coast line. The thickness of strata at the working face was about 1,500 ft. and in addition to this weight was that of the sea water above.

Some idea of the pressure on the pillars will be understood when it is stated that, although large pillars were left for the support of the overburden, these were forced into the roof or floor about two-thirds of their height. Where the original thickness of the seam was 5 ft. 9 in., this was reduced to about 2 ft. by the time the pillars were to be withdrawn. In this instance, we experienced no trouble in taking out all the pillars and withdrawing the timber. There was no inflow of water, but the workings were very dry.

Investigation Showed System of Timbering to Be General in the Mines

The method of posting entries suggested by "Mac" and illustrated on the right of his sketch is exactly what I found in my examination of the places. This system of posting, however, was giving no end of trouble and the cost of timber and labor in replacing broken parts was such that something had to be done to reduce the expense.

After considering the situation carefully, I recommended shifting the track close to the rib and taking out the rib posts on that side of the entry. Two rows of posts were set staggered, on the other side of the entry, between the track and the lower rib. Where the floor was hard these posts were sharpened or tapered at the bottom, which fact permitted them to burr, under the great roof pressure, and prevented their breaking. The plan not only required less timber but diminished the cost of labor for resetting broken posts and the expense was greatly reduced.

I fully agree with what was said in the reply to this inquiry regarding the danger of standing posts on a haulage road. As there stated, where the roof needs support, booms or crossbars should be used and, if possible, the legs supporting these crossbars should be cut short and set in hitches cut in the ribs.

Another plan is to rest the bar in two hitches cut in the ribs close to the roof. A hitch is cut in one rib, about six inches deep, and one end of the bar being first inserted, into this, the other end is slid into a sliphitch cut in the other rib. A narrow wedge is then driven at that end of the bar to hold it in place. This narrow wedge will yield under the side pressure that may come and prevent the breaking of the bar.

I also agree with what is said regarding the driving of wedges between the crossbar and the roof. No wedges should be driven in the center of the bar; but, a wedge should be driven near each end which has the effect of overarching the weight of the roof and throwing it on the rib on either side of the road.

McKeesport, Pa. ANDREW O. BAIN.

Working With Carbide Lamps Where Oil Lamps Cease To Burn

SOME time ago a mine foreman stated an instance that occurred in the robbing of pillars in a mine where the generation of carbon dioxide increased to such an extent that the oil lamps of the miners would not burn, and it was necessary to give them carbide lamps instead. He asked, "To what danger, if any, were the miners exposed when working with the carbide lamps?"

In my opinion there are two dangers to which men are exposed when working in an atmosphere in which an ordinary oil lamp will not burn. First, the men may be overcome with blackdamp, which means not only the presence of carbon dioxide in the air but a deficiency of oxygen on which the health and life of the miner depends. Second, the carbide light does not, in my opinion, indicate the possible presence of blackdamp, for which purpose the Haldane tube is the best test.

Men Should Have Been Withdrawn

What should have been done, in the case cited by this mine foreman, is to have withdrawn the men from the place and not allow them to return until the atmosphere would support the combustion of an oil-fed flame. The fact that the oil lamps failed to burn shows that there may have been, perhaps, 15 per cent of carbon dioxide in the atmosphere; but there is no guarantee that there was not sufficient of this gas present to have caused the death of a man in a short time.

It is true that a man can breathe a much greater percentage of blackdamp present in the air than what is required to extinguish an oil-flame lamp. However, my conviction is that it is never safe to remain long in an atmosphere where these lamps will not burn. As I remarked before, the men should have been withdrawn from the place, which is the only safe practice to follow on such an occasion.

In discussing this situation, Jerome C. White, *Coal Age*, Apr. 29, p. 870, advocates strict compliance with the mining laws, which require the adequate ventilation of mines, or sufficient air to dilute and sweep away the gases formed therein and make the mine safe for work. In my opinion, our mining laws should go still further and make it an offense against the act when the oxygen in the air of a mine is permitted to fall below 20 per cent. Then, and only then, will there be a less number of accidents resulting from poisonous gases.

Scranton, Pa. MICHAEL STARRS.

To Conserve Mine Timber

CONSERVING mine timber is one of the most important problems in the operation of a coal mine today. To those who have not, as yet, come to appreciate this fact, it will soon become evident through their failure to obtain timber from outside sources at a reasonable price, when the local supply has been exhausted.

The fact is plain that more timber is being used in the mines, at the present time, than is being cultivated. Aside from the efforts made by the Forestry Commission, little attention is being given to the growth of young timber. It is true that there are some exceptions to this, as large mining companies have, in a few instances, planted acres of trees that will go far toward replenishing the timber supply in a few years to come. However, it occurs to me that there should be a more general effort made to cultivate timber for mine use, and that this should be enforced by statute at the earliest possible moment.

ECONOMIZE IN THE USE OF TIMBER

In considering the growing scarcity of mine timber, there is another phase of the subject that demands as much attention as that of replenishing the timber supply. I refer to the adoption of such methods of mining as will require the use of less timber and be less destructive of what timber is used in the mines. Where such methods are in use it has been possible to recover much of the timber and use it again and again to good purpose.

In order to fully appreciate what an enormous amount of timber is wasted in mines, consider for a moment, the number of props that are required when driving up a 300-ft. room, under fairly normal conditions. When driving a room two posts are commonly required every four feet of advance, which means 150 posts to drive the room 300 ft. Then, when drawing back the pillars at least three times this number will generally be necessary to make the work safe.

ESTIMATING THE AMOUNT OF TIMBER USED

Where the timber is not recovered or conditions are such that it cannot be used again, it will mean that 600 posts will be required for the extraction of the coal in a single room. Assuming there are 30 rooms on a heading and allowing for those recovered and used a second time, we must estimate on, say half this number of posts or $30 \times 300 = 9{,}000$ posts, on a single heading.

Practical men familiar with mining conditions will readily admit that this is a conservative estimate of the amount of timber required when mining coal under fair conditions. But, when the conditions are less favorable, one is almost paralyzed to think that 25,000 or 30,000 posts may be required to take out the coal from a similar area. The conclusion is pressed forcibly home on our minds that improved systems of mining coal must, of necessity, be adopted and made to replace the wasteful methods now employed.

The use of mining machines in place of the hand pick, for under-cutting the coal, demands greater support for the roof, since the machine cuts deeper and faster than is possible in pick mining. As a consequence, there is a greater roof pressure on the face of the coal, and this must be met with the use of more timber. In hand-pick mining, the miner sets the posts where his judgment tells him they are needed; and, often, the standing of a post is only temporary and in a short time it is taken out and used again. In machine mining, it is necessary to set the posts to facilitate the operation of the machines. A larger number of posts are then required and the same care is not exercized in their use.

I remember the time when a mine wagon containing 30 or 40 posts was given to a man when he started to take out a pillar, and when the pillar was drawn back to the entry there would still be some few posts left. Such a thing is not known today. At that time there was no pillar boss or rib boss.

DOES NOT CONDEMN THE RIB BOSS

Now, in saying this I am not condemning the rib boss of today. On the contrary, let me say, he is more needed now than ever before, as the coal is being mined more rapidly and the proper use of timber to make the work safe, requires every possible precaution being taken. This calls for a very careful man to fill the position of rib boss, and his work is almost indispensable.

The question is, what can be done to make the mining of coal more efficient and safe and, at the same time, conserve the fast diminishing supply of timber suitable for mining. I feel confident that something *can* be done and *will* be done along this line, if those who have the power take the necessary steps for that purpose. Many of the readers of *Coal Age*, no doubt, have plans and methods that are practical, and no time is more appropriate for their employment than the present.

Perryopolis, Pa. R. W. LIGHTBURN.

The Miner and His Powder Flask

THE instance cited by William B. Jackson, *Coal Age*, Apr. 15, p. 771, describing a mine foreman and a mine inspector as finding fault with a miner who had stowed his powder flask in what he considered a safe place in the gob, instead of putting it in a cubbyhole in the rib of the pillar that he was drawing back, is an interesting illustration of how frequently a mine official will not appreciate the real conditions existing in a miner's place.

No one will deny that in driving a room or entry, it is a good idea for a miner to stow his powder flask in a cubbyhole cut in the rib of the entry or room, at a safe distance back from the face. But, consider for a moment the conditions described by this correspondent, who was engaged in drawing back a pillar, which he says was overlaid with a strong top that crushed the coal, often throwing it from the rib into the road, for a distance of several yards ahead. It is probable that neither the mine foreman nor the inspector took into consideration these conditions that were well known to the miner who worked on the pillar.

Judging from the description given by Mr. Jackson, it would have been unsafe for him to have placed his

powder flask in a cubbyhole in the rib of the pillar when working under these conditions. At any moment, the flask would have been liable to have been crushed and the powder spilled on the bottom, which would have been dangerous where open lights are in use, or where there are electric wires in the place.

In my practice, I have used wooden kegs in which the miners placed their powder flasks and stowed them away in the gob, a safe distance, say six or eight feet back from the track. At another time, I have had wooden boxes made for the men, to be used for the same purpose. Each box had a strong lid and made a good safe place for a miner to keep his powder flask while he was at work. The box was kept on the gob side of the road, in a safe place away from the track and electric wires.

Not to be misunderstood in this matter, let me say that I would never place a powder flask in the gob, without it was first put in a box or other strong container. However, in the present case, it is probable that Mr. Jackson had no other choice than to select what he thought was a safe place in the gob. My conclusion is that the mine foreman would have done better had he had strong wooden boxes made for the men in which they could keep their powder flasks. He would not have been obliged, then, to find fault with his men for doing the best they could under the circumstances.

Oak Hill, W. Va. WILLIAM DICKERSON, SR.

Was the Explosive Needed?

DRAWING back pillars under a heavy roof pressure when the conditions were such as described by William B. Jackson, *Coal Age*, April 15, p. 771, suggests a doubt as to whether it was necessary for the miner, in that case, to have a powder flask, which he is said to have placed where he thought it would be safe in the gob. Mr. Jackson states that the coal was often thrown from the rib into the roadway for a considerable distance back from the end of the pillar.

Assuming that the coal was being crushed in the manner mentioned, I fail to see why he required to keep a powder flask with him in the mine. Surely, it would not be necessary for him to blast the coal from the pillar when the roof pressure was breaking it down, it would seem, as fast as it could be loaded and taken out of the mine. It appears to me there was no necessity for the use of powder in this place.

My own idea is that the inspector was testing the miner, in order to ascertain if it was his habit to keep his powder flask in the gob; or whether he knew that it should be kept in a cubbyhole in the rib, on the opposite side of the road from the trolley and other electric wires.

MUST COMPLY WITH THE LAW

It seems to me quite probable that both the inspector and the mine foreman observed and realized the conditions in the place, and knew that it would not be practical to keep the powder flask in a cubbyhole in the rib, except it was placed at a safe distance back where it would not be affected by the crushing weight of the roof as the pillar was drawn back. These men probably had in mind that the keeping of a powder flask unprotected in the gob was not in compliance with the requirements of the mining law regarding explosives.

From a safety point of view, it must be remembered that conditions in the gob when pillars are being drawn are liable to change with scarcely a moment's warning. What this miner thought was a safe place when putting his flask away, might soon become unsafe for such keeping.

My conclusion is that if it was at all necessary to have a flask of powder for this work, the explosive should have been kept in the prescribed cubbyhole, at a point sufficiently far back from the end of the pillar to be out of danger. It would certainly pay to take a little trouble and time in going back for the powder when it was needed, rather than to run any risk of danger.

"Safety first" is the great cry today and, yet, the law permits loose powder to be taken into the mine, although compressed powder is handier and safer in every respect. Considering the carelessness that exists in the handling of loose powder in the presence of open lights, it is surprising that so few accidents occur, and I have seen miners who could speak little English, in violation of the mining law of Pennsylvania, make up a cartridge of loose powder, with their lamp on their head, thus endangering not only their own lives but that of others about them. SAFETY INSPECTOR.

McKeesport, Pa.

Powder Flask in Pillar Workings

ANSWERING the inquiry of William B. Jackson, of Houston, Pa., *Coal Age*, Apr. 15, p. 771, concerning the safe storage of explosives at the working face, with particular reference to black powder in flasks, permit me to say that the description he gives of the working conditions is worthy of careful consideration and inclines me to think he probably was not far wrong in placing his flask on the gob.

As a general condition, however, the things to be considered in regard to storing the daily supply of explosives are: First, that they are placed at a safe distance from the working face; out of the way; up off the bottom; and out of the direct line of blast. Second, that they are stored separately and away from carbide, fuse, paper, squibs, caps, oil and tools. Third, that the container is in a safe condition.

If these considerations be given to the storage of the day's supply of explosives many accidents would be avoided. MINER.

Pikeville, Ky.

Trolley-Wire Guards

ONLY recently, my attention was attracted to the inquiry of "Triprider," regarding the proper width apart of the guardboards protecting a trolley wire in a mine, *Coal Age*, March 11, p. 506. He suggests that the requirement of five inches, in compensation-insurance regulations, should be made five and one-half inches to avoid, as he says, the trolley wheel becoming wedged between the wire and the board should the wheel jump the wire.

When placing a guardboard the first thought should be the purpose of the guard, which is: (1) The protection of the lives of workers in the mine by preventing accidental contact with the wires; and (2) permanency of construction. The opinion of the average motorman is that a guardboard is more trouble than it is worth and, with proper care on the part of the men working in the mine, there should be no necessity for such protection. The motorman would be right,

in this regard, if the rules of safety did not demand the proper protection of all points of danger that are liable to cause accidents owing to the carelessness or lack of caution on the part of workmen.

Good workmanship is required to construct trolley guards at a distance of even five inches apart and to increase this width would make the construction still more difficult. The danger of contact with the wire, moreover, would be much greater should the width be increased even one-half inch, as suggested. A man coming under the wire and suddenly raising his head would have little protection if the boards were spaced too wide apart.

The trouble mentioned by the correspondent is generally due to the loose jointing of the boards, which would allow one or more of them to come close to the wire and catch the wheel as it passes or cause it to jump the wire. In my opinion, the five-inch requirement, affords little chance of the trolley wheel jumping the wire and, at the same time, gives the necessary protection.

In my practice, I have found that the most satisfactory trolley guard is one made of damaged water hose, three and one-half inches in diameter, split on one side and placed over the clamp supporting the trolley wire. A hole is cut in the hose for the expansion bolt. In putting up the hose, it should be stretched with a turnbuckle or block so as to hold it out taut and keep it from sagging and in place. This provides the nearest approach to a 100 per cent efficient guard. It lays close to the wire and will not permit a person to come in contact with the wire, even though directly under it.

Pikeville, Ky. G. E. DAUGHERTY.

American vs. British Mining Practice

WITH deep interest I read both the article of George S. Rice, entitled "Why do American Mine Workers Produce More Coal than British?" *Coal Age*, April 15, p. 762, and the editorial commenting on the same, under the head, "British vs. American Practice," page 766 of the same issue. It is by no means the first time that the subject of the greater production, per man, in American mining as compared with that in the mines of Great Britain, has been discussed.

Only recently, a Colorado mining man contributed a paper, to the Institution of Mining Engineers in England, in which he ascribed the larger production of American miners as due largely to the size of the mine cars in this country. He supported his opinion by giving a large number of facts and showed by sketches the style and dimensions of the cars used.

Strange as it may seem, Mr. Rice does not refer to the question of the size of the cars used in mines. He calls attention to the influence of the depth of the coal, stating that the average of American coal mines do not lie at a greater depth than 400 ft. below the surface, while most modern British mines lie at a depth of 2,400 ft. He also compares the longwall system of working, which is so general in the mines of Great Britain, with the room-and-pillar system of mining commonly employed in this country.

The comparison is unfavorable to the British mines. It is not made clear, however, why the working of a longwall face should have the effect to reduce the output, per man, and make it harder for him to mine the same tonnage of coal as he is able to do in the room-and-pillar system of working.

Depth, of course, will influence the proper control of the roof in mine workings and, on this account, mines lying at a less depth below the surface have the advantage over deeper mines. In the former case, there will generally be lesser quantities of explosive gas with which to contend, and the timbering be less difficult and require a smaller outlay for that purpose. The supervision of the work in the shallower mines, also, will require a smaller number of officials and bosses than is necessary for the same service in deeper mines, per ton of coal mined.

SAFETY THE FIRST CONSIDERATION

Where safety is made the first consideration there can be no doubt but that the longwall system of working presents a decided advantage. In that system, the practice of blasting off the solid is impossible. In British mines, the practice would not be permitted under the Mines Regulation Act. On the other hand, shooting off the solid prevails in many American mines worked by the room-and-pillar method of mining.

Particular attention is drawn to the method of shooting the coal, in the editorial I have mentioned, which regards this as a more important factor in the larger tonnage, per man, produced in American mines than the employment of improved mining machines. Doubtless, machine mining in American mines accounts largely for the difference in man tonnage, as compared with British practice where pick mining is mostly employed. Pick mining, in Great Britain means the use of the pick for undermining the coal and not putting in a little cut and then shooting the coal off the solid, which is so common in many of the mines in this country.

Reference is also made to the relatively lower cost of underground haulage, in American mines, as compared with the same item of expense in the mines of Great Britain. In few British mines could electricity be employed for haulage purposes in the manner in which it is used in this country. On this point, however, Mr. Rice appears to be quite optimistic, stating that hauling by the trolley system is forbidden in the mines of Great Britain because of the danger of electric sparks causing the ignition of gas in those deeper mines.

HAND LOADING IN BRITISH MINES

The output, per man, in British mines is also greatly influenced by the fact that in most of those mines the coal that can be loaded with the bare hand is the only coal sent out. The fine coal and slack is left in the mine, except where the coal is of such a quality that it can be used for the manufacture of coke. It is obvious that this fact alone is sufficient to account for a considerable portion of the deficit in the tonnage, per man, in British mines.

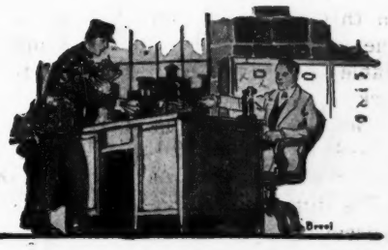
In summing up the advantages possessed by American mines, which enables them to show a larger output, per man employed underground, than is possible in the mines of Great Britain, I would add to the items already mentioned, the greater average thickness of the coal seams in this country; also, the fact that they do not show the same frequency of bands of rock and shale interspersed with the coal. The absence of these bands makes the preparation of the coal for market much easier, as there is less work required to separate the clean coal from its impurities. This fact is one well worthy of consideration in drawing a comparison in the tonnage, per man, in the mines of these two countries.

Livingstone, Alta., Canada. JAMES ASHWORTH.

Inquiries of General Interest

Answered by

James T. Beard



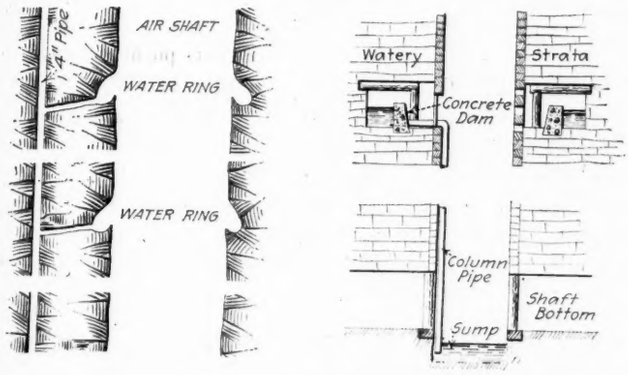
Caring for the Water in a Wet Shaft

WE ARE starting to sink an air shaft 10 x 14 ft. deep, in the clear. The strata through which the shaft must be sunk are rather hard and contain lots of water. In order to prevent this water seeping through the curbing into the air shaft, which would give much trouble from freezing in winter, it is my intention to encircle the shaft with water-rings, at frequent intervals, and connect each ring with a drillhole cased with 4-in. pipe. This hole will be located about 4-ft. from the side of the shaft and drain into a sump at the shaft bottom.

I want to ask if the readers of *Coal Age* can suggest any better means of handling this water. I would also appreciate suggestions as to the best design, in detail, regarding the construction of a permanent water-ring that would prevent the water from flowing into the shaft.

CHARLES F. SHERMAN, Gen. Supt.,
Peoria, Ill. Groveland Coal Mining Co.

Who, among the practical readers of *Coal Age* will be able to give this desired information, out of their experience in the successful handling of water in wet shafts. The plan suggested by the correspondent is good, provided the watery strata continue practically



SHOWING TWO TYPES OF WATER RINGS FOR DRAINING A WET SHAFT

throughout the depth of the shaft, which would make it necessary to drain all the water to the shaft bottom. On the other hand, if the watery strata lie near the surface and over a hardpan it is always advisable to save the extra power that would be required to pump water from the bottom of the shaft.

This can be done by making an excavation for a sump of sufficient capacity in the hardpan and installing a pump, at that point in the shaft, for the purpose of pumping the water to the surface. The latter will mean a considerable saving in the cost of pumping, over what would be required if the water must be drained to the bottom of the shaft and then pumped to the surface.

In the accompanying figure, we offer suggestions on the construction of water-rings, but these will vary with the conditions in particular cases. On the left of the figure is shown the excavation of a simple water-ring in reasonably hard strata, each ring being connected with a 4-in. column pipe, as described by the correspondent. Where the strata are sufficiently self-supporting, water-rings of this kind can be excavated all around the shaft. A good plan is to line the excavation with a good hydraulic cement. It is important to give the ring a sufficient inclination to enable the water to drain properly into the column pipe.

At the right of the figure is shown a type of water-ring that is better adapted when strata are not self-supporting, and are pervious to the water. In that case, a concrete dam is formed around the shaft and the excavation lined with concrete to prevent the leakage of the water into the shaft. Here, the drain pipe leading from the water-ring to the bottom of the shaft is shown as being conducted down the outside of the shaft curbing to the sump at the bottom. We hope to hear from others regarding their experience and practice.

Estimating Weight of Coal Required for Hoisting in a Shaft

KINDLY answer this question: From a shaft 400 ft. deep; we are hoisting 1,000 tons, in four hours. How much coal should be burned, assuming that 7 per cent of the heating value of the coal is available in the production of steam?

STUDENT.
Cambria, Ill.

It is only possible in this case to estimate the weight of coal burned per hour, in a very general way. For example, the work performed in hoisting 1,000 tons of coal, in 4 hr., in a double-compartment shaft where the weight of the cage and car is balanced, allowing an addition of, say 10 per cent for the friction of the hoist, is

$$\frac{1.1\ (1{,}000 \times 2{,}000 \times 400)}{4} = 220{,}000{,}000\ \textit{ft.-lb. per hr.}$$

Now, assuming the hoisting engine has an efficiency of, say 83⅓ per cent it will be necessary to add one-fifth more to this work to allow for the operation of the engine making the hoist, which shows the gross work performed, in that case, is 264,000,000 ft.-lb. per hr.

Again, assuming the heating value of the coal as, say 12,000 B.t.u. per lb. and taking the efficiency attained in burning the coal as 7 per cent, the available heat in the coal is 12,000 × 0.07 = 840 B.t.u. per lb. of coal burned. But, one B.t.u. is equivalent to 778 ft. lb (mechanical equivalent of heat) and one pound of this coal, on the assumed basis will develop 840 × 778 = 653,520 ft.-lb.

Finally, if the gross work required, in this hoist, is 264,000,000 ft.-lb. per hr. the weight of coal required to be burned per hour is 264,000,000 ÷ 653,520 = say 400 lb. per hr.

Examination Questions

Answered by

James T. Beard

Miscellaneous Questions

(Answered by Request.)

Ques.—Explain the law of the diffusion of gases and its effect on their behavior in mines. Give the rules and an example showing how to find the comparative velocity of the diffusion of different gages?

Ans.—According to Graham's law, gases and air diffuse into each other in the inverse ratio of the square roots of their densities. The lighter the gas, the more rapid is its rate of diffusion. For example, the specific gravity of methane or marsh gas being 0.559, referred to air as unity, its rate of diffusion into air is $1/\sqrt{0.559} = 1.3375$; that is to say, while 10,000 cu.ft. of air is passing into the methane, 13,375 cu.ft. of this gas will pass into the air.

The specific gravity of the resulting mixture is found by multiplying each of these relative volumes by the corresponding specific gravity and dividing the sum of the products, by the total volume of the mixture, thus

$$\frac{(10{,}000 \times 1) + (13{,}375 \times 0.559)}{10{,}000 + 13{,}375} = 0.747$$

In other words, the mixture resulting from the diffusion of methane into pure air is practically three-fourths of the weight of pure air.

Ques.—Suppose that, in a fiery mine, the quantity of air in circulation is 175,000 cu.ft. per min., measured in the return current, which contains 4 per cent of marsh gas when the barometer is 30 in.; what quantity of gas is given off in the mine?

Ans.—If the return air contains 4 per cent of gas, the quantity of gas generated in this mine is $175{,}000 \times 0.04 = 7{,}000$ cu.ft. per min.

Ques.—(a) In the last question, what is the least decrease in the quantity of air that will render the return air explosive? (b) What increase of gas will render the return air explosive?

Ans.—(a) The lower explosive limit of pure methane mixed with pure air is reached when the proportion of gas to air is 1:13. In that case, the gas is one-fourteenth of the mixture. Then, since the mine, in this case, is generating 7,000 cu.ft. of gas per minute, the total volume of gas and air when the mixture first becomes explosive is $14 \times 7{,}000 = 98{,}000$ cu.ft. The decrease in the quantity of air passing on the return, necessary to render the current explosive is $175{,}000 - 98{,}000 = 77{,}000$ cu.ft. per min.

(b) Since this mine is generating 7,000 cu.ft. of gas per minute, the volume of air in the return current is $175{,}000 - 7{,}000 = 168{,}000$ cu.ft. per min. Then, if the lower explosive limit of the mixture is reached when the proportion of gas to air is 1:13, the quantity of gas required to make this volume of air explosive is $168{,}000 \div 13 = 12{,}923$ cu.ft. per min. Therefore, the increase of gas that will produce this condition is $12{,}923 - 7{,}000 = 5{,}923$ cu.ft. per min.

Ques.—What first-aid service would you render a person suffering from: (a) compound fracture of limb, (b) electric shock, (c) powder burns, (d) fractured rib?

Ans.—(a) Having ascertained that the injured man suffers from a compound fracture of limb, the first-aider must use the best means at hand to adjust the injured limb in the easiest possible position, and bind it there very carefully to prevent further injury from the fractured bone cutting into the flesh and causing fresh bleeding. The injured man should be carefully placed on a stretcher and removed to better air or taken to the mine hospital to await the arrival of the physician, if his removal is practicable.

(b) Where a man has received an electric shock, the first duty is to shut off the current, or short-circuit it at a point between the man and the powerhouse; or else to remove the person from contact with the wire. It is not always possible to shut off the current quickly; but a short-circuit can generally be effected by dropping a bar or drill across the wire, on the side of the person toward the power. Avoid standing on wet ground or handling the wet clothing of the person; but with a quick movement push or drag him from the wire by means of a dry pole or a dry garment. No time must be lost in needless delay.

After removal from the wire, apply artificial respiration, by stretching the victim at full length on the ground, with his face downward but turned slightly to one side to permit easy breathing through the nose and mouth. See that the mouth is clear and the tongue drawn forward. Then, straddle the man's thighs and, placing the palms of the outstretched hands across the back, alternately press forward to expel the air from the lungs and draw backward to allow air to again enter, keeping up this motion at the rate of natural breathing, say fourteen times a minute. This should be continued until the victim shows signs of returning life and consciousness, or until he is pronounced dead by a physician.

(c) Burns from powder should be treated to exclude the air from the burned surface, by applying a thin paste of baking soda, starch or flour, mixed with water. Vaseline, olive or caster oil, fresh lard or cream, are all good when available. These should be gently applied to the surface and covered with light cloth.

(d) In the case of a fractured rib, tie a large handkerchief or a triangular bandage firmly around the chest and bind with a large towel or garment suitable for the purpose, so as to limit the motion of the chest and diminish the pain. Use great caution and care in removing the patient to another place, while awaiting the doctor.

Some Wage Problems*

Definition of a Living Wage Difficult, to Begin With—Increasing Wages to Meet Living Cost Fails to Compensate for Shortage of Goods—Distinction Between Wages and Earnings Is Significant

BY C. E. LESHER

THE title of this paper—"Some Wage Problems"—is rather broad. It might better have been "Wages—Some Problem." Wages and the high cost of living are the two questions of paramount interest to all people today; they are so inter-related that one can hardly think of one without calling up the other. In this paper I shall attempt to outline a few of the wage problems as they apply to the question of coal-mine labor.

We all agree, of course, in the fundamental proposition that the wage paid labor, whether a wage or a salary, should be a living wage, and that American labor should be given the opportunity to earn such a wage. The difficulty comes in agreeing upon the definition, in dollars and cents, of a living wage. A wage by the hour, day, week or month, is a definite thing with which we may compare the cost of living and thereby arrive at some conclusion as to whether it is adequate. A piece-rate wage—the tonnage wage of the coal mines—must be interpreted into possible earnings per day, week or month before we can make such a comparison.

WANTED—AN EFFECTIVE STABILIZER

The one big problem that confronted us with the rise in the cost of living in the past few years has been the adjustment of wages to meet that increase in the cost of living. Nearly all the wage adjustments in the past three years have centered about that fact. Inquiries and statistics on the rise in the prices of essential commodities and in the cost of maintaining life have been the starting point in nearly all important wage adjustments. On this basis wages in all industries have again and again been boosted upward, but we are no better off today than we were a year ago. Further advances will be made for the same reason until something happens to bring us to a condition of stable equilibrium.

To quote George E. Roberts, vice president of the Natonal City Bank: "It seems reasonable as a proposition standing by itself that wages should increase to correspond to increases in the cost of living; but nothing is more certain than that a general advance in wages cannot compensate for a shortage in goods. If you were to double all wages in the United States today, it would not give you another bushel of wheat, or pound of sugar, or yard of cloth. It would simply give everybody the means with which to compete for what he wants, with the result that prices would rise to absorb the additional purchasing power. The only remedy for a scarcity of goods is more goods."

We must have clearly in mind the distinction between wages and earnings. Earnings are the measure of the adequacy of wages. The distinction is by no means equally significant in every occupation. For instance, in occupations such as the building crafts and production of bituminous coal, the larger rate of pay or wage may be offset by unemployment or shorter hours. On the other hand, low rates may sometimes be brought to relatively higher earnings by excessive overtime or period of continuous employment. Neither rates nor earnings should, therefore, be taken alone on a study of the wage situation.

The range or variation in wage rates, as well as in earnings in various geographic areas, for many similar kinds of work and sometimes for a specific occupation, is so broad that conformity to the prevailing wage does not mean a great deal. Illustrating these two points in the coal industry, we note that the tonnage man has a wage that gives him a higher daily earning capacity than the dayman, but the company man, because of steadier employment, approaches the monthly earning of the higher-paid direct labor. Rates of pay for the same work as between districts vary because of local conditions. We may well illustrate this by a table of tonnage rates from some of the more important coal fields.

The most striking thing about these rates is the variation in the differentials, both as between fields and as between pick and machine rates. The districts selected by no means represent extremes, but may be considered as representative of the industry. They include fields both large and small and union and non-union. The variation in pick rates is explained, of course, by the difference in mining conditions, or should be so explainable. In the figures cited we find a range in pick mining rates from about 71c. per ton in Harlan, Ky., to $1.13 in Iowa. These figures are those of the Washington Wage Agreement, in effect before the strike last Novem-

MINING RATES PER NET TON AND DIFFERENTIALS IN CERTAIN OF THE BITUMINOUS COAL FIELDS

As of October, 1919

District	Pick Rate	Machine Rate — Cutting	Machine Rate — Loading	Machine Rate — Total	Machine Differential
Pennsylvania:					
Pittsburgh thin vein	$0.8764	$0.1260	$0.5740	$0.7000	$0.1764
Pittsburgh thick vein	.7911	.1088	.5343	.6431	.1280
Ohio:					
Hocking	.8764	.1040	.5960	.7000	.1764
Jackson	.9400	.1248	.6126	.7374	.2026
Pomeroy	.9060	.1160	.5840	.7000	.2006
Ohio No. 8	.8764	.1125	.5875	.7000	.1764
Crooksville	.9060	.1475	.5960	.7435	.1625
Cambridge	.8764	.1000	.6000	.7000	.1764
Illinois:					
Vermillion	.8400	.....	.....	.7400	.1000
Southern	.8000	.1067	.6233	.7300	.0700
Moweaqua, Lincoln, Niantic	.8800	.....	.....	.8100	.0700
Pana and Gillespie	.8400	.....	.....	.7700	.0700
Springfield	.8470	.....	.....	.7700	.0700
Duquoin	.8000	.....	.....	.7300	.0700
Indiana	.8400	.1120	.6080	.7200	.1200
West Virginia:					
Kanawha	.8232	.1192	.4892	.6084	.2148
Fairmont	.7125	.1082	.4625	.5707	.1418
Oklahoma	1.0332	.0877	.8040	.8917	.1415
Kentucky:					
Hazard	.7486	.1080	.4559	.5639	.1847
Northeast Ky	.8050	.0999	.5011	.6010	.2040
Harlan	.7083	.0977	.4806	.5783	.1700
Southern Appalachian	.8401	.1408	.6324	.7732	.0669
Central Penna	1.0529	.0808	.6382*a*	.7190	.3339
Iowa	1.1269	.0921	.8561	.9482	.1814

a Excludes car pushing.

*Address delivered at the meeting of the Kentucky Mining Institute, Lexington, Ky., June 4, 1920.

ber, which were increased 24c. per ton by the Coal Commission. Though not those in effect today, they serve equally well to illustrate the differentials.

Loading rates range from about 46c. per ton in the Fairmont and Hazard fields to 85c. per ton in Iowa. These differences are the field differentials and are more or less fixed. You appreciate the reasons for wanting field differentials in given cents per ton, and why when changes are made in wages these changes are not accomplished by percentage adjustments. A mining rate in the Hazard field averaging about 75c. per ton is 5c. lower than this corresponding average in northeastern Kentucky of about 80c., and, all other things being equal, the cost of production is 5c. less. Oklahoma pays a pick rate on the average of $1.03, which is about 10c. less than in Iowa; Hocking pays 6c. less than in the Jackson field. These field differentials are the net result of years of wage agreements, adjustments and trade requirements. They have become so fixed that to both miner and operator they are almost sacred.

Differentials Must Be Carefully Considered

Nevertheless, one of your wage problems is either to maintain these differentials, or such of them as are in your favor, or to break down such as are not in your favor. The effort to change may come from the field that has a high rate, but more generally the agitation comes from the miners—witness the demand for the abolition of the differential between the thick- and thin-vein rates in the Pittsburgh field, made last winter by the United Mine Workers. In fact, the miners, according to the record, would have opened the whole question of differentials before the wage commission.

Machine differentials are the differences between the pick mining rates and the total rates for cutting, shooting and loading behind the machine. This type of differential is calculated to represent the element of cost accruing to the operator because of his investment in the machines. The variation in machine differentials from field to field is more difficult to analyze. It ranges from 7c. in the southern Appalachian and many of the Illinois fields, 16 and 17c. in Ohio and western Pennsylvania and the Harlan fields, to 20c. in northeast Kentucky, 21c. in Kanawha and 33c. in central Pennsylvania.

Now, these figures are either the contract scale of prices or, in the non-union fields, averages of actual rates. At each mine there may be local variations, the result of peculiar conditions, such as hard coal, abnormal thickness or thinness, desirability or undesirability of working conditions. These local variations are settled in each case by agreement between the men at the mine and the operators and are usually carried forward year after year in much the same manner, and the settlement in each case represents a wage problem for each of you—a problem that must be settled on its merits; let us hope always in a spirit of fairness to the wage earner.

As a result of investigation made by the coal operators working through their local and national organizations we have available representative figures on the earnings of coal-mine labor under the pre-strike wage rates. Those for the union fields have been made public in the records of the Bituminous Coal Commission, so that we are able to make certain valuable and interesting comparisons.

The first conclusion of the disinterested observer of these data is that by all means a wide readjustment of wage rates in bituminous coal mining is necessary on the theory that rates should afford comparable monthly earnings. One does not, however, delve far into the subject until he realizes that wages are not thus scientifically determined, that though labor is not a commodity its price is based on the law of supply and demand just as surely as is the price of coal.

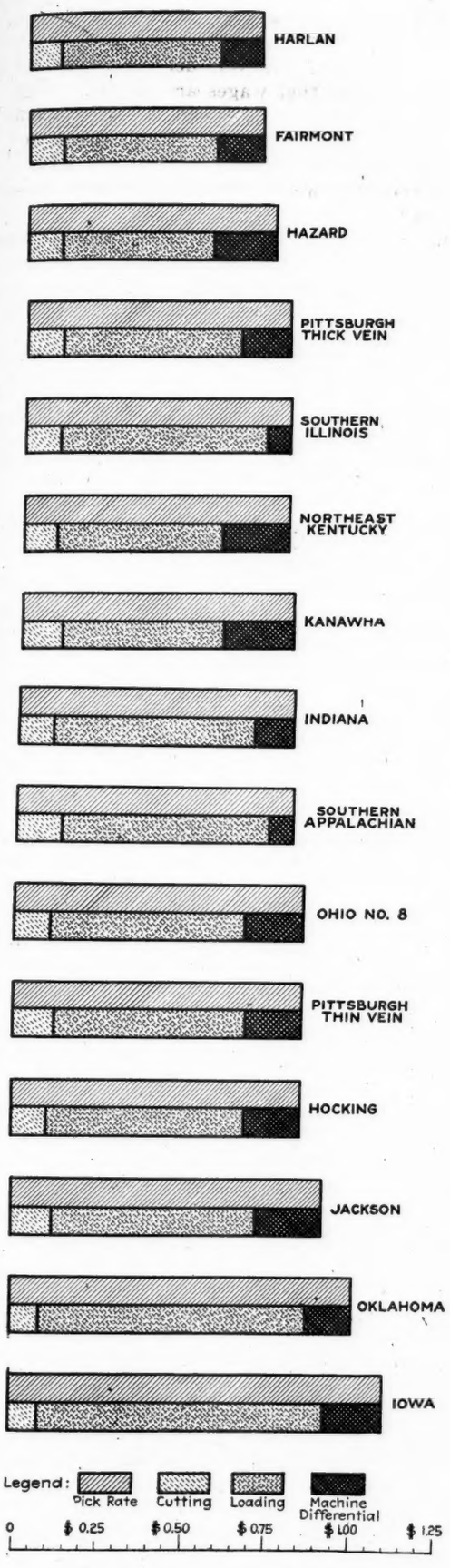
These differences in wages and the earning power under them are not lightly to be cast aside. You will recall that the President's Bituminous Coal Commission recommended that, as the question of differentials was too large a subject for its short endeavors, a commission be selected in the Central Competitive Field to make a study of this burning question and report to the joint conference in 1922. We have heard nothing of the appointment of that commission and we will hear nothing, because neither side cares to open the subject. It is plainly not safe to open the question until such time as wages and relations with labor are determined by impartial tribunals, and not, as now, by barter and trade, charge and counter charge.

We are all aware that the only result of the efforts of the Bituminous Coal Commission was to reaffirm the principles laid down by Dr. Garfield the day before Thanksgiving. He found, from the information at hand, that 14-per cent increase was due mine labor to equal the increase in the cost of living. The commission had later data indicating the necessity of 27-per cent increase to reach the same level. The weeks of hearings, the volumes of speeches, and truckloads of statistics were wasted, unless we consider it essential that each side be given a chance to get into the "record." Perhaps in our present state of civilization and development of industrial relations, there is no other way to settle wage disputes except, in the last analysis, by force.

Leadership Among Operators Pressing

The outcome of the wage dispute and strike of last winter was the largest increase the bituminous miners ever gained at one time, with which they have agreed to be satisfied for two years. The victory went to the miners; the operators have never told their story. The miners have a common leadership that leads, that can speak for them, and in the presentation of their case both to the public and to the commission they were more effective than the operators, who were divided in every detail and a unit on only the main question. Have any of you seen or heard a clear-cut statement of why the operators were willing to give the miners 20 per cent, and why they did not consider 31.61 per cent reasonable? Did the operators at any time present their case as have the miners? I am making this reference to recent history because the development of leadership in the coal industry, as pressing on the one side as on the other, is one of the problems that concerns wages and labor.

To my thinking there is no reason why the operators, union and non-union, should not join in wage discussions and settlements. Such a course was proposed for the National Association last winter and was defeated largely by operators from the non-union fields. Our non-union production is none too great as matters now stand, and the coal industry should unite on a policy that will keep for the country this bulwark of protection, the one-third of our output that is not to be called out on strike. The miners have their protection and



MINING RATES AND DIFFERENTIALS

Graphic presentation of mining rates showing field differentials and machine differentials in certain bituminous coal fields, as of October, 1919

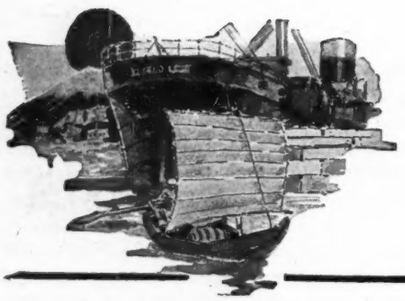
more, in the union that represents two-thirds of the mine labor in this country. We are not safe with less non-union production than we now have. To join on this policy—giving non-union miners the same advantages that are afforded union men as a result of their collective bargaining, to prevent the spread of the union beyond its present limits with the un-American check-off, but never to lag behind the standards of wages and working conditions set by this arbiter of labor—is one of the complex wage and labor problems of the coal industry.

The most general and important characteristic which we observe in the study of war-time and post-war wage increases is that the wages of the lowest paid increased in markedly greater percentage than did those of the better paid. These increases, when considered in money rather than in percentage, present a different aspect; the low-paid received a greater percentage of increase during the war and since than did the high-paid, but the actual money increase has been about equal. We see this illustrated in the coal industry by the relatively greater advances given the daymen than the tonnage men. The base rate in the Central Competitive Field of $2.84 per day for company men was increased from 1914 to 1919 by 76 per cent, or $2.16. During the same period the tonnage rate for pick mining was increased only by some 40 per cent, which percentage gave the miner almost as large a money increase in earning power. That is, a miner who was earning $5 per day under the old scale, was enabled by the 40 per cent increase to earn $7, or $2 more, which gave him about the same money increase as the dayman.

This observation is important because when the turn comes and you are obliged to propose to the miners that they accept a decrease in wages, in order that you may continue to operate and they to have work, for such a time is coming, the question of relative changes in high and lower paid labor will be of greater importance. Whether day-paid labor drops back to its relative position of before the war will depend on the relation of supply and demand for common labor at that time. It is most certainly true that today the indirect labor cost—that is, the per-ton cost of day labor—is too high, and the only way it can be reduced is for the men to work more efficiently or for reduced wages.

Operators and Transshippers Inspect Jersey Central's New Equipment

COAL operators and transshippers were the guests of the Central Railroad of New Jersey last week on a visit to the new pier 18 of that road, to inspect dumping facilities and equipment, thawing sheds, classification yards, etc. General Superintendent J. W. Meredith and Assistant Engineer Zabriskie met the party with a special tug boat and acted as hosts. Among those present were W. Hartmann, of the Hartmann-Blanchard Co.; Dr. H. M. Payne and George N. Reed, of the Bertha Coal Company; W. P. Harriman, Export Department, Irving National Bank; C. K. Sutton, Debevoise Anderson Company; Charles S. Allen, N. Y. Wholesale Coal Trade Association; V. N. Heermance, Kentucky Coal and Navigation Co.; H. T. S. Ellison, Armstrong Transportation Co.; Mr. Koenig, Alden Coal Mining Co.; Mr. McGowan, B. Nicoll & Co., and C. Andrade, of Andrade-Eyre, Inc.



Foreign Markets and Export News

Turkey Offers $100 a Ton for Alabama Coal

Export coal merchants of Birmingham, Ala., have received inquiry from an American business house in Constantinople with the statement that the Constantinople consumer is prepared to pay as high as $100 per ton delivered there.

Spain, also, wants Alabama coal. So do Italy, France, South America, Cuba and Switzerland wish it. Likewise one of the largest yard men of Atlanta city has been in Birmingham to place orders. His yards, which usually at this time of the year have large stocks on hand for summer delivery, have none.

A capitalist who has been considering the purchase of three ocean-going barges to ply out of Mobile to Cuba and the east coast of Central America, in the export coal trade, came to Birmingham to see about a supply of coal. As he could get no guarantee, he may not purchase the barges.

The ships are in Southern waters, but the shortage of gondola cars prevents the moving of coal from Alabama mines. There would be several more blast furnaces in operation were there cars to move the output.

The steam and domestic demand for coal is as strong as that for export, but car shortage prevents filling that demand.

Aden Imports South African Instead of British Coal

Aden, Arabia's trading center in the Red Sea district, Consul Addison E. Southard reports, is an important coaling station and the item of coal is always a considerable one in the annual imports. A feature of the last two years has been an almost total cessation of imports from England and India, and very greatly increased imports of South African coal. In 1918-19 there were imported 77,171 tons of coal, valued at $2,421,897. During 1913-14, the last normal year, the imports, more than half of Welsh coal, amounted to 126,482 tons, valued at $849,670.

According to these figures the coal imports in the last year before the war had an average value of $6.71 per ton, and for the year under discussion the average value per ton was $31.38. At times during the current year there has been an almost complete exhaustion of private, as distinguished from Government, coal supplies in Aden, and many ships have been turned away which normally depend upon Aden for coaling. At the time this report was written one of the two leading coaling companies in Aden had exhausted its stocks and probably would have to wait some weeks for new supplies.

The Interstate Commerce Commission has ordered the originating railroads to return cars to the owning roads. This has at once affected car supply at numerous operations. Various plans for direct routing are suggested, but it is hard to see how this will possibly benefit New England.

Tonnage Supply to Europe Is Plentiful

W. W. Battie & Co.'s coal trade freight report announces that numerous steamers for export coal are being offered. During last week a number of prompt boats were offered each day at $18 Antwerp/Rotterdam and to other destinations at rates quoted below. To the West Indies and to South American ports the situation remains unchanged. Shipping rates are:

	Rate		Tons Displaced
Copenhagen	$21.00/22.00	—	1,000
Stockholm	22.00/23.00	—	800
Gothenburg	21.00/22.00	—	1,000
Antwerp/Rotterdam	17.75/18.00	—	1,000
Hamburg	18.00/19.00	—	1,000
French Atlantic, excluding Rouen	About 18.00	—	700
Algiers	21.00/21.50	—	800
West Italy	About 21.00	—	1,000
Marseilles	About 21.00	—	1,000
Piraeus	About 23.00	—	1,000
Trieste/Venice	About 23.00	—	1,000
Port Said	About 24.00	—	1,000
Constantinople	About 24.00	—	500
Gibraltar	About 18.50	—	1,000
Pernambuco	14.50/15.00	—	500
Bahia	14.50/15.00	—	500
Rio	14.50/15.00	—	1,000
Santos	15.00/15.50	—	600
Buenos Aires or La Plata or Montevideo	13.50/14.00	—	1,000
Para	About 14.50	—	500
Rosario	About 13.00	—	750
Bahia Blanca	About 15.50	—	1,000
To Nitrate Range	9.00/10.00	—	750
Havana	About 6.50	—	600
Sagua or Cardenas	About 8.50	—	300
Cienfuegos	About 8.00	—	500
Caibarien	8.00/8.50	—	300
Guantanamo	About 8.00	—	500
Manzanillo	About 9.00	—	300
Bermuda	About 7.00	—	300
Bermuda p.c. and d's. free			
Kingston	About 8.75	—	400
Barbados	About 9.50	—	500
St. Lucia	About 9.50	—	500
Santiago	About 8.00	—	500
Port of Spain, Trin	About 9.50	—	500
Curacao	About 9.00	—	500
Free p.c. Curacao			
Demerara	13.00	—	400
St. Thomas	8.50/9.00	—	500

All above rates gross form charter.

France To Receive British Coal Exports

France will receive 45 per cent of British coal exports, according to the London *Evening Telegram*, under an agreement reached by Premier Lloyd George and Premier Millerand in their recent conference at Hythe.

Prices Quoted at Panama Canal On Coal and Fuel Oil

Coal, according to the Panama Canal Record, is being supplied to steamships including warships of all nations, delivered and trimmed in bunkers, at $13.50 per ton of 2,240 pounds at Cristobal and $15.50 at Balboa. For ships in transit through the Canal, which are directed to take coal at Balboa for the convenience of the Panama Canal, $13.50 per ton at Balboa. For ships taking less than carload lots from plants or less than 25 tons from lighters, the price is $15 per ton at Cristobal, $17 at Balboa.

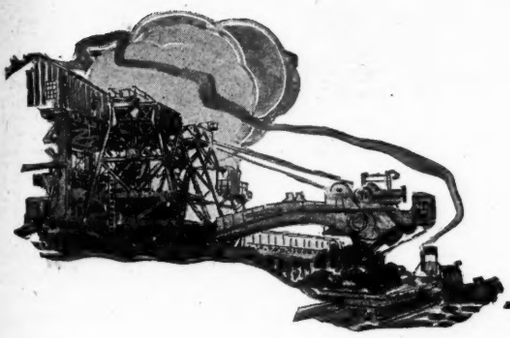
Crude fuel oil is delivered to vessels which utilize that form of fuel, passing throug the canal in either direction, at either Cristobal or Balboa for $1.50 per barrel of 42 gallons.

Natal To Market Byproducts From Low-Grade Coal

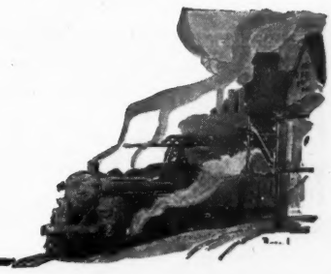
Vice Consul Charles J. Pisar, Cape Town, reports that the manufacture of byproducts from second-grade coal which is hardly good enough for steam purposes is about to be commenced in the Province of Natal by the South African Carbide & Byproducts Co., of Burnside. This company has an authorized capital of £250,000 ($1,217,000). A carbide and byproducts plant is now in the course of construction. The seams of this second-grade coal are very thick, and consequently the raw material is easily obtainable. Tests made some time ago show that the coal is high in nitrogen and yields over 120 lb. of sulphate of ammonia, 2½ gal. of benzol, and 16 gal. of tar oil per ton of coal.

Southwest Africa Is Without Workable Coal Beds

A considerable amount of prospecting done in Southwest Africa, Vice-Consul Charles J. Pisar, Cape Town, reports, has failed to uncover any coal seams which could be mined on a profitable basis. Some years ago small lenticles of coal, up to 4 centimeters [centimeter = 0.3937 inch] in thickness, were struck in dark Dwyka shale near Keetmanshoop in the course of sinking a well. Prospecting pits and boreholes were at once put down, some to a depth of almost five hundred feet, but the results were negative. In no other parts of Southwest Africa, as far as authentic records show, have any traces of workable seams been found.



Production and the Market



Weekly Review

Pooling of Lake Cargo Coal and Threatened Embargo on Exports Features of the Week—Production Keeps Up Slow Improvement—Gains Not Sufficient to Hold Back Buyers Who Are Making the Present Market

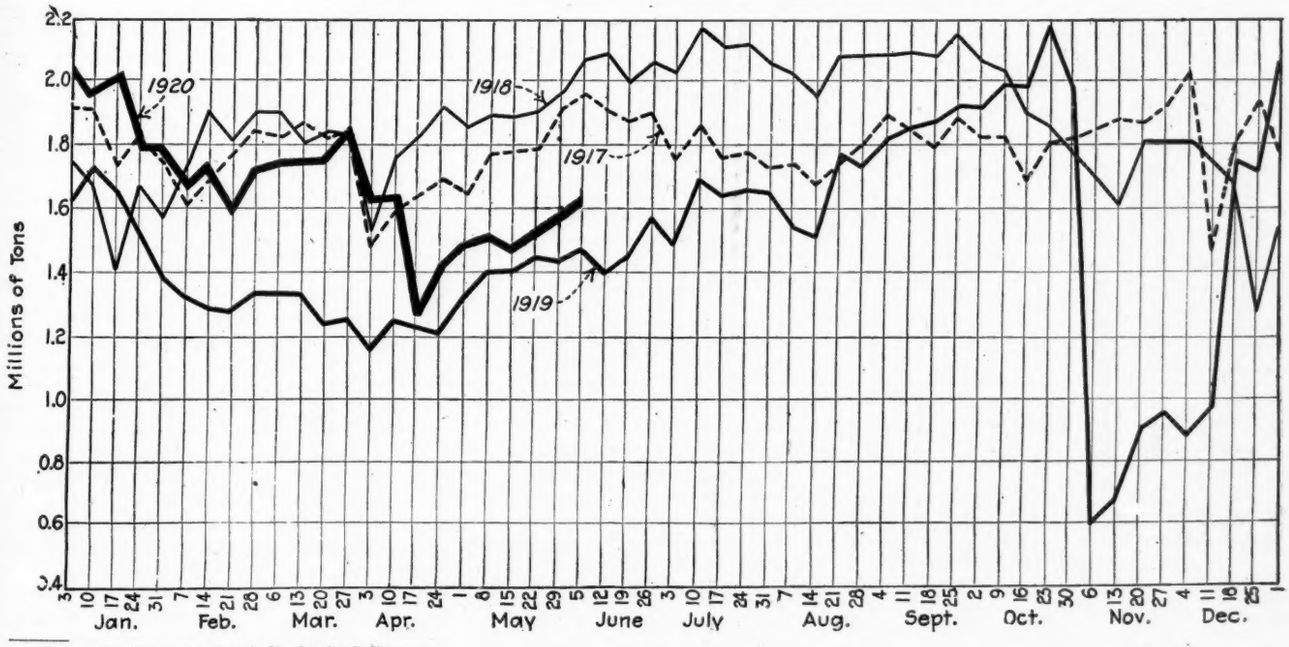
EXPORT embargoes and resumption of Government control of distribution of coal were the major proposals last week of those who would correct the present out-of-joint fuel situation by legislative or governmental action. Coal men who see in the present erratic movement of bituminous coal to abnormal markets a repetition of conditions that resulted in the zone system during the war, are looking forward to the adoption of some such scheme in the near future. No one appears optimistic regarding the ability of the railroads to make up the losses that have been piled up in the last three months and forecasts for next winter are indeed gloomy.

Pooling of Lake coal was agreed upon last week and began this week. Less than 2,500,000 tons had been dumped, including vessel fuel, up to June 13, compared with something over 7,000,000 tons in the same period of last year. The performance so far this year indicates a total for the year of 13,000,000 tons, compared with estimated requirements of 30,000,000 tons. Pooling alone will not speed up movement to make up the deficit. The next step the commission will suggest is being awaited with interest.

Export cargo coal from the East continues to move in volume and prices generally are going up. The high quotations are on sales made by operators of little mines up in the hills to which eager buyers with open check books make daily rounds in search of stray cars of free coal. The price on this class of business ranges from $10 per ton up at the mines. Between $6 and $8 is the more regular spot market price, representing business done on larger scale than single-car purchases. Small wonder the railroad with no contracts is assigning cars in part payment for coal.

Anthracite is in short supply in the Middle West and in Michigan, to which markets the producers say they are having great difficulty in getting transportation. Dealers in the Western territory are buying premium coal at $10 and more per ton at the mines. NewEngland is not complaining very loudly about the supply of hard coal, as nearly all communities are faring well. The East generally is in better shape for domestic sizes.

Average Daily Production of Bituminous Coal*



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Active Spot Market Establishes New High Levels—Car Supply Shows Some Improvement — Hampton Roads Slowing Up—Urgent Demand for Gas Coal Develops — Anthracite Car Supply Is Threatened — Domestic Sizes Are in Strong Demand.

Bituminous—Each week sees spot prices mount to new high levels. The industries here are clamoring for prompt shipments and they are indifferent as to price, for the most part. The great urgency in the present situation is to keep supplies coming forward. The New Haven embargo has been restored, as of June 15.

There are no signs of a receding market. Nothing whatever has come of the attempt of the Massachusetts state government to interfere in the coal situation. Meanwhile, mills and other large buyers are placing orders through middle houses, and in some cases are sending their own representatives to central Pennsylvania to bid for spot coal.

The railroads here are also actively in the market. There are enough conservative operators who are still selling at prices around $6@$7 to furnish such buyers with a moderate supply of spot coal, and there are still others who are willing to make contracts with railroads at $3.75@$4 where the railroads will furnish assigned cars.

In car-supply there has been some improvement the past week. Sections near Pittsburgh have shown a better yield of railroad fuel, and to such extent has this proved true that the New York Central, for instance, has reduced the number of cars that were being confiscated each day at the scales.

Despatch at the Virginia piers has been slowing up the past week, due largely to slow handling at the piers. There has been no appreciable increase in movement to New England, buyers here being content for the present to confine themselves to securing emergency supplies all-rail.

Receipts are up to contract quota. There is a sharp local demand for Pocahontas and New River at re-handling points like Boston, Providence, and Portland.

There is especially urgent inquiry for gas coal. Prices have risen to $9.50 for screened high volatiles and there is vigorous competitive buying among different industries requiring these grades. The amount of coal still being confiscated in transit adds to the anxiety of buyers who are using their best efforts to get coal forward.

On cars Providence and Boston, Pocahontas and New River are quoted at $11.50@$15. At Portland $15 is a representative figure. At Hampton Roads f.o.b. vessel there is a wide range of prices, as high as $14 having been realized on special sales.

Anthracite—The trade has been anxious the past week over the anthracite roads having been directed to withhold a certain percentage of cars from anthracite collieries to help out the bituminous situation.

Domestic sizes continue in quite strong demand. The prices of independent coals are strong and no real improvement in supply is expected. The renewed embargo on the New Haven road makes the outlook for that territory very serious. Steam sizes are in slightly better request.

Tidewater

NEW YORK

The Anthracite Situation Improves Slightly—Domestic 10c. Increase Becomes Effective—Domestic Demand Is Strong — Bituminous Market Active, with Good Demand and Quotations High—Car Supply at Mines Is Poor.

Anthracite—Receipts of anthracite at this tidewater are heavier and the general situation shows a slight improvement. Shippers do not look for any let-up in the demand for many weeks to come.

All producers have now advanced their mine prices to the rates announced by some of the large producers in May, and in addition (with a couple of exceptions) have added an increase of 10c. per ton to the original prices for the domestic sizes, effective June 1. These prices, however, are tentative pending the outcome of the award to be made by the President's Anthracite Commission.

The demand for domestic coal remains strong. Dealers are receiving plenty of coal for their immediate requirements but have little surplus. Egg, stove and chestnut are most in demand, with a strong call for broken. Deliveries from the docks are slow because of the harbor troubles.

The producing companies have many orders ahead and efforts are being made to distribute the tonnage satisfactorily. Independent quotations ranged as high as $9.50 at the mines. Buckwheat was being quoted by some shippers at $4.65 at the mines.

Current quotations for company coal per gross ton at the mine and f.o.b. tidewater, at the lower ports are as follows:

	Mine	Tidewater
Broken	$7.45–$7.50	$9.30–$9.35
Egg	7.30– 7.45	9.15– 9.30
Stove	7.55– 7.80	9.40– 9.65
Chestnut	7.65– 7.80	9.50– 9.65
Pea	5.85– 6.25	7.60– 8.00
Buckwheat	4.00– 4.10	5.75– 5.85
Rice	3.00– 3.50	4.75– 5.25
Barley	2.25– 2.50	4.00– 4.50
Boiler	2.50	4.25

Bituminous—The bituminous market is active. Orders are plentiful but the continuance of the harbor troubles so delayed deliveries that toward the end of last week embargoes were in force at South Amboy, Port Reading and Arlington, the first named port being entirely closed to shipments, while at the other docks shipments were subject to permits.

Poor car supply is a big factor in the present situation. Reports from the mines fail to show any improvement. Along the Pennsylvania road the mines report about a 25 per cent supply; while those along the Baltimore & Ohio and the New York Central fare slightly better.

This Port continues to lose considerable bunker and export business because of the local harbor troubles. Coal for export is in heavy demand with prices firm.

Early in the week quotations were easier than they were at the end of the week when quotations for loaded boats ranged from $11.75 to $13. Mine quotations were around $8 to $8.75. The railroads continue to confiscate coal but are paying for it at the prices on which it was originally billed.

PHILADELPHIA

Stocks of Anthracite Are in Fair Volume Here—Retailers Stock Up—Stove and Nut Are in Demand, with Steam Sizes Quiet — Bituminous Supply Is Unimproved — Cars Withdrawn from Other Industries.

Anthracite — The dealers in this vicinity continue to be moderately well supplied with the various sizes and this market is well above the average on the amount of tonnage received. Embargoes against anthracite shipments by connecting lines has served to throw increased shipments to the city all spring.

While the car supply in the anthracite region has been all that could be desired, the supply will probably be cut, in order to relieve the car shortage in the bituminous region. Some of the retailers accordingly are taking in as much coal of all sizes as they are able to procure.

Stove and nut have lost none of the pressure of demand for these two sizes, with the call silghtly in favor of the former. Egg and pea, while not so active, are giving no dealer any difficulty in moving them.

The steam sizes are in a fair position. Buckwheat is moderately well taken care of. Rice is only in fair demand, with barley very quiet, if not dull. Most of the dealers are putting buckwheat back for the winter so as to have a stock on hand when the real demand comes.

Bituminous—Of course car supply is the ruling factor in the bituminous trade, and there is hardly a shipper who will admit receiving more than a 25 per cent supply. The prices for Pennsylvania steam coal in the spot market run from $8.50 to $9.25, with very little offering. Gas coals of the Fairmont grades are selling spot from $8.25 for slack up to $9.50 for ¾.

While the car supply has improved very little of late, it is understood that open-top equipment is to be immediately withdrawn from every other industry until the soft-coal trade reaches a 50 per cent supply, even the anthracite trade being cut in the same manner.

BALTIMORE

Bituminous Market Is Making New High Levels—Ten-Dollar Coal at Mines Is Recorded—Export Demand Heavy—Railroads Cannot Deliver Coal to Market—Anthracite Prices Move Up.

Bituminous—With a growing demand for fuel at fancy prices the market here is again making new high levels. Ten-dollar coal, f.o.b. mines, on both steam and gas production, the net ton, has come to be a fact.

However, the real market price for best steam coals is probably around $9 to $9.50, and for best high-volatile screened from $9.25 to $9.50. Even the least desirable coals are bringing $8 at the mines, the net ton, or better. Most coal handlers here report that such coals readily command $8.25. Intermediate coals sell closer to the high marks than to the low at present writing.

This high-priced fuel at the mines, means between $13 and $14 a ton delivered to some of the plants here, who are not fortunate enough to get part of the railroad coal that is being distributed to some plants at lower figures to keep them going, or who are not being kept running by coal-firm connections of long standing at prices closer to the real market value of products.

Transportation has caused this situation. For six months the Baltimore & Ohio R.R. in many mining sections has not made a record of better than 40 per cent, and the Pennsylvania and Western Maryland, while better for a time, are now about in the same class.

Export demand keeps up and the reports for the first five days of June showed a total of about 90,000 tons of cargo and 13,000 tons of bunker for the same vessels loaded for foreign delivery here.

Anthracite—Hard coal men have again seen several wholesale advances. The independents have advanced prices 15 to 25c. a ton over the May delivery rates. Company prices have gone up 10c. a ton. However, little coal is coming through.

Coal men here are beginning to worry over the situation, realizing that the Government preferential treatment for cars for delivery to the Lakes, just announced, will further delay receipts of hard as well as soft coal here.

Lake

BUFFALO

Spot Bituminous Is High and Scarce—Anthracite Supply Is About Normal—Lake Movement Active—Coke Trade Is Badly Demoralized.

Bituminous—The main feature of the trade is the mounting of prices. The situation looks bad, but the tonnage of high-priced coal is small in comparison with the full amount moving. So much of the output has been contracted for that many of the larger operators are selling next to no coal on single orders. Consumers who have scant contracts are paying about $7.50 at the mines for their extra coal, though the asking price is sometimes a dollar more.

A good many of the jobbers, unable to control the trade in any way, are striving to get coal as cheaply as they can and as much of it as they can for their old customers and they are finding the task no easy one. If any coal can be bought the cars are scarce and the movement is slow. If the customers have contracts the task is still harder.

The Buffalo switchmen's strike has died out, but it is found that a good many other railroad centers are tied up more or less by a similar strike and that adds to the complications. The harbor men have declared their strike off and are back to work.

Anthracite—The supply of anthracite is much better than that of bituminous, so that city distributors are of the opinion that more has been delivered to customers than ever before to date. This means a good winter supply.

The situation at the mines is not good, but the men work and the car supply is sufficient to keep this market and shipping center busy. Independent mines are still asking premiums of from $1.50 a ton up, but the demand is not heavy in that direction.

In the Lake trade the movement is as large as it usually is at this time of the year. The Lake fleet is active.

Coke—The trade is in a pretty badly-demoralized condition, owing to the uncertain condition of the car supply and the consequent fluctuation of prices. The oven price for foundry and furnace coke is $20. One shipper who sells a good amount of it quotes domestic chestnut coke at $9.10 f.o.b. Buffalo, and breeze at $5.60. The furnaces are not buying coke on single orders to any extent, depending on their contracts for supply.

CLEVELAND

Ohio Operators Are Not Receiving Cars Ordered from the West by I. C. C.—Industrial Stocks Continue Extremely Low—Pooling Plan Is Approved and Priority Given to Lake Coal.

Bituminous—The recent geological survey, which discloses coal production almost 2,000,000 tons short of normal, shows that the bulk of this shortage is concentrated in the mines which produce for Cleveland and for Lake shipment.

Much complaint is being voiced by operators (with headquarters in Cleveland) to the effect that they are not receiving the anticipated number of cars ordered east by the Interstate Commerce Commission. An effort is being made to have the Cleveland district given a preference for a month until the shortage is relieved.

Industrial stocks continue extremely low. Some factories in order to obtain coal are paying as high as $8 a ton for small lots of spot fuel.

Pocahontas and Anthracite—As the season progresses the demand for Pocahontas increases apace, but retailers are unable to meet anything like the demand. Prices remain firm. Anthracite receipts continue to show a slight improvement, although they are still far below normal.

Lake Trade—The Interstate Commerce Commission has approved plans for pooling Lake shipments on the 1918 basis. Instructions are being sent to all railroads to give priority to all coal consigned to the Ore & Coal Exchange. Embargoes will be placed against any Lake coal except that covered by permits authorized by the exchange. Cargoes will be dumped faster under the pooling plan. Retail prices of coal per net ton delivered in Cleveland are as follows: Anthracite—egg, $13.20; grate, $13.20 and $13.50; chestnut, $13.50; stove, $13.50. Pocahontas—shoveled lump, $11.75; mine-run, $9.25. Domestic bituminous—West Virginia splint, $9.50; No. 8 Pittsburgh, $8.75; Millfield lump, $9.50; Cannel lump, $11.50. Steam coal—No. 6 and No. 8 slack, $8.25; No. 6 and No. 8 mine-run, $8.25; No. 8 ¾-in. lump, $8.25 to $8.50.

MILWAUKEE

Better Supplies Cause Easier Market, but Stocks Received Are Below Normal—Situation Causes Anxiety—Prices Are Maintained.

The coal situation at Milwaukee is temporarily easier, because of a betterment in the flow by rail. Deliveries of anthracite are being freely made, the small dealers being allowed more liberal allotments.

This reduces the clamor for the present, but those upon whom the burden of maintaining the general supply rests are not in a very complacent state of mind.

With the month of June well advanced and the supply of soft coal thousands of tons behind the amount received last year up to this time, coal men are naturally fearful of the outcome of the season's receipts and the resultant howl from the public when the coal bins become exhausted.

Everybody connected with the coal-handling trade is busy trying to loosen up channels of supply. April prices continue to be maintained. Receipts thus far this season aggregate 170,278 tons of anthracite and 213,492 tons of soft coal, against 177,980 tons of the former and 828,853 tons of the latter during the same period last year.

Inland West

DETROIT

Shortage of Coal Continues — High Prices Cause Steam-Coal Users To Delay Buying — Domestic Trade Is Uneasy.

Bituminous—Wholesalers and jobbers say there is no improvement in Detroit's coal supply. The amount of bituminous coal arriving in the city is insufficient for the steam and domestic trade and in consequence very little of the stock is finding its way to retail yards.

By far the larger proportion of the shipments are coming from mines in Ohio with a small quantity from Illinois and Indiana fields. Ohio lump is quoted at $7.50 per short ton at the mines, with mine-run holding at about $7.25 and slack obtainable at $6.75 to $7.

With the coal trade in its present condition and the transportation situation in such shape that many months must elapse before anything like adequate car supply will be available, the jobbers feel that the buyers who hold off hoping for lower prices are destined to meet with disappointment.

Anthracite — Few shipments of anthracite are arriving in Detroit. Stocks in yards of retail dealers have been wiped out. With distribution of next winter's supply set back and no immediate prospect of deliveries to dealers in quantity, that will permit an early start on catching up, the prospect is far from encouraging for the household consumers.

Lake Trade—Owing to insufficiency of car supply, the movement of coal to Lake loading docks continues to fall short of requirements. Vessels are also having much difficulty in getting fuel coal.

ST. LOUIS

Transportation and Working Conditions Show a Little Improvement — Strong Call for Steam Coal, but Domestic Demand Is Light—Heavy Buying from the North and Northwest Recorded.

The past week has shown a little improvement in the matter of transportation and car supply. The car supply in the past week has averaged from 35 to 40 per cent on the trunk lines, but the greater portion of this has been railroad tonnage.

Short working time continues to cause unrest among miners. The mines in the Standard field on commercial coal average 2½ days and in the Mt. Olive field a trifle over 3 days.

Embargoes were effective against some Western lines this past week. The terminal at St. Louis is gradually getting over its strike troubles and while conditions are not normal, they show considerable improvement. Abuse of coal equipment still continues.

In the Carterville field a better tonnage of domestic came out the past week, especially to points north, quite little moving to the St. Louis market.

The railroad still takes nearly all the coal produced at Missouri Pacific mines and local points on this road in the South are hard pressed for fuel.

Locally St. Louis is strong for steam coal, but domestic demand is somewhat light. Buyers from Michigan and Indiana, as well as Chicago and Northwesternpoints, have been buying coal here the past week at from $4.50@$5 for every size from all fields.

The prevailing prices on outside shipments from the Standard field have been $4.50 to $5 on all sizes. The local price averages about $3@$3.50 on domestic sizes, and $3 on steam, from both Mt. Olive and Standard fields.

Carterville prices range anywhere from $3.60@$4.50 on domestic sizes and from $3.25 upwards on steam, depending upon what the traffic will bear and who the seller happens to be.

Retail prices advanced 25c. on Mt. Olive, making Carterville $7.25@$7.50; Mt. Olive $6.25; Standard $5.50.

CINCINNATI

Good Stocks of Coal on Hand but Demand Has Slackened—Ohio River Furnished Transportation—Prices Are Steady with Little Spot Coal Available.

All dealers in Cincinnati have good stocks of coal, but the warm weather has slackened the demand. The Ohio River has enabled them to stock up to a great extent. However, the business with the retailers, who supply the household demand, is not as brisk as during the first months of the spring.

The average daily car supply at the mines is only 39 per cent, with more than a normal demand. Furthermore, only 50 per cent of the amount of coal that went to tidewater last year has been shipped to this territory during the present year.

Coal men state that as a result of the Ohio River transportation, Cincinnati buyers are paying from two to three dollars a ton less for coal than consumers in other cities.

Operators with headquarters here see a faint shadow of hope in the report from the West Virginia fields where production in the past ten days has improved, although the car supply is away below normal.

Prices seem to be more steady, there being no reports of advances, although they still are on quite a high level. There is little spot coal available and that is being sold at $7 for mine-run gas coal. The demand for steam, gas and byproduct coal is enormous. Companies are now only loading mine-run, as special sizes bring little more than this grade.

There has been no increase in prices in the retail field, the prices quoted on coal delivered during the past week being as follows:

Bituminous lump	$8.00@$8.25
Bituminous nut	6.75@ 7.50
Bituminous run-of-mine	$7.25
Smokeless lump	9.25
Smokeless run-of-mine	8.50
Anthracite	14.00

COLUMBUS

The Coal Trade Does Not Improve—Lake Situation Is Deplorable — Steam and Domestic Business Active and Prices Are on the Upgrade.

Instead of getting better, the coal trade in Ohio appears to be getting in worse shape. Car supply in all of the producing fields is still reduced to below 50 per cent and as a result production is at a low point. Stocks are being depleted and large users are unable to accumulate any surplus.

The Lake trade is attracting the attention of producer, shipper and consumer alike. Government officials are also taking cognizance of the situation with the likelihood of preferential orders for equipment for Lake shipment. Records at all of the lower Lake docks show that scarcely 20 per cent of the usual tonnage being moved up to this time has been started to the Northwest.

This presages an acute shortage in that section with the likelihood of all-rail shipments later on. Railroads are not equipped for a heavy all-rail movement and if it is necessary other sections of the country will suffer because of lack of equipment.

Steam business is active in every way. Large consumers are continuing their practice of bidding for available tonnage with the result that prices are still on the upgrade. Plants are unable to get sufficient fuel to run on full time and in many instances have had to close down entirely.

Prices for Hocking mine-run on the open market range from $5 to $7.50 while other grades are the same. All grades command about the same figure and many of the large producers are still endeavoring to hold down the price. Such operators cling to a price of $4.50 for all grades. Some prices are soaring. West Virginia prices are higher than those in Ohio.

Domestic trade is also active and prices are advancing in sympathy with the rates at the mines. Hocking lump and mine-run retail in the neighborhood of $8.50. West Virginia splints retail at $9.50 and Pocahontas if available around $10.50 to $11. Practically no Kentucky coal is coming in.

Production is slow as the car supply is generally less than 50 per cent of normal. The Hocking Valley produced about 45 per cent last week while Cambridge, Jackson and Crooksville report less than 40 per cent. Pomeroy Bend had a slightly better run with 50 per cent. Eastern Ohio is running about 35 to 40 per cent with a large part going to railroads and to the Lakes. Commercial users have only a small percentage of the reduced output.

Prices at the mines are as follows:

Hocking lump	$4.50 to $6.50
Hocking mine-run	4.50 to 6.25
Hocking screenings	4.50 to 6.25
West Virginia splints, lump	5.75 to 8.00
West Virginia splints, mine-run	5.50 to 7.75
West Virginia splints, screenings	5.50 to 7.75
Pocahontas lump	7.00 to 8.00
Pocahontas mine-run	7.00 to 8.00
Pocahontas screenings	6.75 to 7.75
Pomeroy lump	5.00 to 7.50
Pomeroy mine-run	5.00 to 7.50

CHICAGO

Coal Supply Improves Materially—Anthracite and Eastern Coal Moves More Freely Into Chicago—The Switchmen's Strike Has About Straightened Out Here.

Chicago's coal supply today is very much more substantial than it was two weeks ago, or even a week ago, as nearly every retail yard, as well as practically every factory, has enough coal on hand to run them at least two or three days a week.

This is quite a great change for the better, when one considers it was only two weeks ago when retailers had practically no coal whatsoever, and manufacturers had just enough coal to run from hour to hour.

Anthracite coal is moving into Chicago more freely than heretofore and this is also true of certain high-grade Eastern coals which are generally used in large quantities in the city. The congestion of the Eastern seaports is probably responsible for this. However, it is not arriving in large enough quantities to take care of the great demand for it.

Railroad authorities state that the congestion brought about by the switchmen's strike practically has now been straightened out and that freight is moving in a fairly normal manner through Chicago terminals. This ought to benefit the coal industry as during the strike and the consequent congestion following the strike a great number of coal cars, both loaded and empty, were stranded in Chicago.

MIDWEST REVIEW

Coal Experiences Slight Lull in Active Demand—General Car Situation Does Not Improve — Long Hauls Do Not Benefit Matters—The Price Situation Changes Little.

Owing to a spell of hot weather and the Republican convention in Chicago, the fuel problem, during the past week, no longer occupies the center of the stage.

With the exception of one or two spots in Indiana, and the Central district of Illinois, the car supply has been just as poor as ever. The average for the fields, not including the Central district, will show about a 33 per cent supply. The reason why the Springfield district is getting a better supply than the rest of the field may be because it is the first one to feel the effect of the Interstate Commerce Commission's ruling that all Eastern cars are to be returned.

At this writing operators in the Middle West are not very optimistic as to an improvement in the car situation on account of the recent rulings of the Interstate Commerce Commission.

The present great shortage is due to a number of interesting things. Inquiries from Eastern states, requesting quotations on Illinois and Indiana coals have been fairly common. Illinois and Indiana coals, all grades, have been moving into Michigan, to points in the western part of Ohio and to Canada, either through Minnesota or the Detroit gateway.

Operators, as a rule, frown on this long-haul business as they believe it would be for the best interests of everybody to avoid long hauls and widespread distribution of coal-carrying equipment.

There has not been much change in the price situation. Some of the coals, however, which were selling at around $6 per ton a couple of weeks ago, are now moving at lower levels. Some of the Franklin County operators are said to be asking $3.90 per ton f.o.b. mines for their prepared sizes.

South

BIRMINGHAM

Transportation Conditions Show No Improvement—Operations Handicapped by Lack of Cars, Local Strikes and Labor Delinquency—Coal Is in Strong Demand with Prices Steady.

The condition as regards car supply remains about stationary. This field is expected to receive some benefit in this respect from the order of the Interstate Commerce Commission, instructing the delivery to eastern lines from western roads of 39,600 coal cars.

About 2,500 of these cars will be available to the Louisville & Nashville for use in the Kentucky-Tennessee and Alabama fields, and the supply to the former section should relieve to some extent the constant drain on the Birmingham district to enable the Kentucky-Tennessee mines to equalize operating time with Alabama.

Delivery of cars from foreign lines to the Illinois Central at New Orleans and Chicago will also enable that line to maintain a better equalization with the Frisco and Southern in serving the Alabama mines. Mines on the Southern and L. & N. have been receiving a fair quota of cars where fuel contracts were held, but commercial mines have only received about a 50 per cent supply. Frisco mines have been served better.

Local strikes in Walker, Bibb and Tuscaloosa counties have some dozen or more mines partly or entirely closed down, and idleness at these operations is curtailing coal production considerably. Labor is slow in reporting for work at active mines, while there is some shortage of men at some plants which are attempting steady operations.

Steam coal requirements are much larger than the district can supply, and the mines are taking on but little new business, as they are unable to take care of what they now have in hand. Prices are remaining practically stable, the small tonnage available for spot buying not being sufficient to affect market conditions, though almost any price named can be obtained for such coal. The market for domestic sizes holds good and the same general conditions govern the trade for this grade of fuel as in the case of steam coal.

LOUISVILLE

Car Supply Is Much Improved—Gas and Byproduct Coal Is Moving Freely—Domestic Demand Light—Western Ky. Steam-Coal Market Weakening — Export Trade Light.

During the first week of June the Kentucky operators had the best car supply of months, securing a 50 to 60 per cent supply, and getting in three full days.

The principal fuel demand at the present time is for gas and byproduct coal which is moving freely. There is also a stocking demand from Canadian, Northwestern and Lake regions. There is also a good demand for coal from public utilities, railroads and general industries.

There is no contracting being done on present markets, and practically all coal is sold for spot delivery, and most of it for cash. Demand for western Kentucky steam coal has been slumping off somewhat, and the market is weaker.

Export movement is comparatively light due to shortage of facilities at Southern ports for handling, with the result that not much over 100,000 tons a month is moving from Kentucky, Virginia and Tennessee to Charleston and Savannah.

Mines continue to turn out little other than mine-run. Screenings are quite scarce and in big demand. Coal prices at the mine are as follows:

	Eastern Gas Coal	Kentucky Non-Gas	Western Kentucky
Lump	$8.00@8.75	$7.75@8.40	$5.25@5.50
Mine-run	8.00@8.75	7.50@8.00	4.75@5.00
Nut and slack	7.75	6.75@7.00	3.75@4.00

Canada

TORONTO

Moderate Supplies of Anthracite Are Coming Forward — Bituminous Is Still Scarce — Fuel Administrator Says Industries Must Use Anthracite — Prices Unsettled and Increasing.

Since the lifting of the railway embargo conditions have shown improvement. Moderate supplies of anthracite are coming forward, but dealers are still much behind with deliveries and are only accepting orders at the price prevailing when delivered.

Little bituminous has been received and the situation as regards the supply for industrial plants remains serious. H. A. Harrington, provincial Fuel Administrator, made a trip to the American coal fields in order to secure enough coal to keep the gas plants in Toronto and other cities in operation, otherwise they would have had to close down.

Prices are variable with a decided upward tendency. Present retail quotations for short tons are about as follows:

Anthracite egg, stove, nut and grate	$15.00
Pea	13.50
Bituminous steam	14.00
Domestic lump	15.00
Cannel	14.00

News From the Coal Fields

Northern Appalachian

FAIRMONT

Production Decreases—Embargo Is Placed on Curtis Bay Coal—Railroads Take Large Part of Coal Output.

Lowered production still featured the week ended June 5 in northern West Virginia, a pronounced shortage of cars still being at the seat of the trouble. An added source of shortage, however, was a suspension of work on the part of miners on Decoration Day.

Tidewater shipments were somewhat retarded during the week due to an embargo covering coal for Curtis Bay, owing to an accumulation of about 1,000 cars at the piers. Although numerous vessels were on hand awaiting cargoes, it was found impossible to load coal as fast as it arrived. By the end of the week nearly all the tidewater piers of the Baltimore & Ohio were under embargo.

Since traffic has been resumed on the Pittsburgh & Lake Erie R.R., it has been found possible to move more coal through Brownsville, Pa., so that more cars were being received in the early part of June on the Monongahela R.R. than during the greater part of May, though the supply was still far short of requirements.

Railroads were showing no disposition to cease assigning a large part of the limited car supply to mines loading railroad fuel, and consequently during the first week of June, in the Fairmont as well as in other northern West Virginia fields, the carriers were securing the lion's share of the coal produced, leaving a comparatively small volume available for shipment to commercial consumers.

There was little or no increase in the volume of western or Lake shipments.

CONNELLSVILLE

Furnace Coke Contracting Begins on 4-to-1 Ratio — Spot Prices Remain High—Byproduct Oven Production Increases Faster Than Beehive.

Contracting in furnace coke for the second half of the year has begun, with the closing of about 25,000 tons a month on the basis of a 4-to-1 ratio, against basic pig iron at valley furnaces, now quotable at $43.50, a price that would make the coke on such contracts $10.87.

These contracts provide for a maximum of about $12, so that if iron went above $48 there would be no further advance in coke, while there is also a minimum for coke.

Some sellers would quote a 4-to-1 ratio but would refuse to have any maximum specified. Two or three sellers have quoted a flat price of $12.

The spot market is a shade easier in tone, but prices are not quotable at materially lower levels. The spot market is quotable at $14.50@$15 for furnace and $15@$15.50 for foundry, per net ton at ovens, against $15 for furnace and $16 for foundry quoted a week ago.

Car supplies in the Connellsville region continue to increase, but at quite a slow rate. The supplies of cars at coal mines furnishing byproduct coals seem to have increased more than the supplies for loading coke in the Connellsville region, for the byproduct ovens are now operating fairly well.

The *Courier* reports coke production in the Connellsville and Lower Connellsville region in the week ended June 5 at 189,580 tons, an increase of 2,852 tons. The showing is quite favorable in its way since the week included Memorial Day.

PITTSBURGH

Empty Cars Are Not Being Moved Promptly—Little Coal Offered in Open Market — Coal Consumers Are Buying Railroad Cars.

Car supplies in the Pittsburgh coal district continue to increase, but at a slow rate. All the railroads are functioning better, the Baltimore & Ohio nearly normal, the Pennsylvania not far from normal, and the Pittsburgh & Lake Erie at a much better rate, though still quite far from normal.

There is still complaint among shippers that railroads are not getting the best results from their equipment, the difficulty not being wholly a shortage of ordinary labor. For illustration, a certain fairly large blast-furnace interest in the valley has had no trouble in shipping pig iron, or in getting iron ore in and little difficulty in getting coke, but it has had a great deal of trouble in getting the railroad to remove empty cars after unloading.

While coal production has increased, the insistence of buyers has also increased, and producers are so well tied up by contract requirements that they have little coal to offer in the open market, the consequence being that prices have soared still higher.

There have been times in the past few days when buyers were not certain of finding even steam coal at under $10, while $9 seems to be about the lowest price that has been secured on any grade.

Promises of early deliveries might be had at considerably lower prices, but the buyers who make the market now require car numbers, and for spot shipment (with car numbers) the market is quotable at $9@$10 per net ton at mine, Pittsburgh district.

The feeling among large coal consumers that there is no assurance of good railroad service, even when the roads are fully manned and in command of their equipment, is shown by the following car orders lately placed by coal consumers: Koppers Co., 1,000 cars; Youngstown Sheet & Tube Co., 500 cars; Bethlehem Steel Co., 1,000 cars; International Harvester Co., 500 cars; Weirton Steel Co., 200 cars. All these concerns operate byproduct coking plants.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL

	1920 Week	1920 Calendar Year to Date	1919(a) Week	1919(a) Calendar Year to Date
May 22b	9,246,000	202,358,000	8,724,000	167,139,000
Daily average	1,541,000	1,655,000	1,454,000	1,367,000
May 29b	9,548,000	211,906,000	7,938,000	175,077,000
Daily average	1,591,000	1,652,000	1,498,000	1,372,000
June 5c	9,138,000	221,043,000	8,927,000	184,004,000
Daily average d	1,650,000	1,650,000	1,488,000	1,377,000

ANTHRACITE

	1920 Week	1920 Calendar Year to Date	1919(a) Week	1919(a) Calendar Year to Date
May 22	1,797,000	33,053,000	1,673,000	30,351,000
May 29b	1,834,000	34,888,000	1,298,000	31,649,000
June 5	1,510,000	36,398,000	1,703,000	33,351,000

BEEHIVE COKE

United States Total

Week Ended June 5 1920c	Week Ended May 29 1920b	Week Ended June 7 1919	1920 to Date	1919 to Date a
413,000	427,000	271,000	9,343,000	8,653,000

a Less one day's production during New Year's week to equalize number of days covered for the two years. (*b*) Revised from last report. (*c*) Subject to revision. (*d*) Counting Memorial Day as half a working day.

(All figures in net tons.)

Middle Appalachian

NORTHEAST KENTUCKY

Cars Are Far Less Plentiful on L. & N. Than on C. & O.—One-Third of Big Sandy Tonnage Goes to the Lakes—Use of Assigned Cars Disturbs Operators.

Less coal was mined in the Northeast Kentucky field at the outset of June than was the case for a similar period during the greater part of May, only 110,240 tons being produced out of a possible total of 294,760 tons, leaving a gross production loss of 184,520 tons. A scarcity of cars was responsible for a loss of 179,530 tons.

While there was little change in the car supply situation on the Chesapeake & Ohio R. R., there was a decided change in the situation on the Louisville & Nashville, cars being far less plentiful on the latter road than on the C. & O. It is stated that L. & N. mines were limited to a supply equal to about one-third of requirements.

An increased Lake movement was in evidence throughout the week in the Northeast Kentucky field, it being estimated that fully one-third of the Big Sandy tonnage at least was being billed to Lake points. As the result of the increased Lake movement, not so much coal was shipped to tidewater.

What continued to disturb many companies in the field was the large number of assigned cars, all mines loading railroad fuel having an ample supply of empties; while on the other hand commercial-loading mines in many instances were forced to shut down because of lack of equipment for loading.

LOGAN AND THACKER

Car Supply Improves in Second Week of June—Lake Shipments Increase and Tonnage to Tide Is Embargoed—Efforts to Organize Thacker Field Interfere with Output.

While no direct benefits were derived from the new Interstate Commerce Commission regulations governing the movement of cars to the East, during the week ended June 5, in the Logan field, there was unquestionably an improvement during the following week in the car supply.

However, it was impossible to produce any more coal in the first week of June than it had been during a similar period in April and May, the output for the entire week reaching only 142,000 tons; while on the other hand production losses amounted to between 250,000 and 275,000 tons. In other words there was only about a 35 per cent output.

Slides on the C. & O. leading into the Logan field, as well as on the main line, were factors in reducing production in addition to the poor car supply, eastern shipments of course being entirely suspended toward the end of the week.

More than 92 per cent of the working time of mines in the Logan field was taken up in loading assigned cars. There was a perceptible increase in Lake shipments during the first week of June, but at the same time tidewater tonnage was heavy. However, early in the second week of June, Logan coal was debarred from tidewater because of an embargo growing out of the slides (of the preceding week) on the C. & O.

Losses in production were steadily mounting in the Thacker field at the advent of June largely because of the organization campaign which is being waged here by the United Mine Workers, total losses aggregating in the neighborhood of 150,000 tons.

There has been a suspension of operations at many mines as a result of the attempt to organize the field and that was responsible during the first week of June for a loss in production said to be in excess of 50,000 tons. However, the loss was even larger from a car shortage, amounting to approximately 80,000 tons.

Production on the Chesapeake & Ohio system as a whole was beginning to show signs of improvement during the first week of June though still below normal. During this period the road handled on its system a total of 9,528 cars, or about 476,400 tons.

NEW RIVER AND WINDING GULF

Car Supply Averages About 40 Per Cent for First Week of June—Coal Goes to Tide—Coke Is Shipped West—Transportation on the Virginian Is Sub-normal.

Operators of the New River and Winding Gulf fields found little or no encouragement during the first week of June, since satisfactory operation of the mines was possible only twice during the weekly period, cars being so scarce during the other four days that it was impossible to operate more than the fraction of a day.

The car supply for the week did not average over 40 per cent, that measuring the production of the field. On Saturday a slide at Montgomery had its baneful effect on operations in the field.

As far as the movement of New River coal was concerned, shipments were mostly for tidewater, Inland East shipments consisting mostly of prepared sizes. No attempt was made by producers to ship enough coal westward to amount to anything, not even to the Lakes, and it is stated that there will continue to be a small western movement until it is possible to secure the quick return of equipment from the West.

Coke was being shipped, however, mostly to Western markets. Some operators were of the opinion that coke prices might recede, owing to lowered prices on pig iron. If such was the case it had no effect on New River coal, no reduction in the price of that coal being recorded.

Mines in the Winding Gulf field were still handicapped owing to the fact that transportation conditions on the Virginian Ry. were sub-normal following the strike of Princeton shopmen. However it was stated that the strike situation had undergone improvement.

POCAHONTAS AND TUG RIVER

Empties Come in from the West and Increase N. & W. Output—Fancy Prices Are Offered for Spot Coal—Contract Coal Sells for About $5—Properties Change Hands.

Production in Norfolk & Western territory was on a somewhat larger scale during the first week of June than had been true at any time since the middle of April, the improvement in conditions following an augmented car supply, resulting from an increase in the delivery of empties from the West.

Coal Loading in the Tug River field for the week ended June 5 totalled 75,450 net tons. It was pronounced the best output in two months.

Prices even in excess of $9 a ton are reported as having been offered for coal to tidewater but there is only an exceedingly small amount of coal not under contract. Operators say that by far the greater bulk of the best coal in the Tug River field is tied up at a price not in excess of $5 a ton.

Spot coal from the Pocahontas field was bringing at least $9 a ton. However, there was little spot coal available even at that amount. Contract coal was being shipped at approximately $4 a ton less than the spot prices offered. There was at the outset of June no let up in the demand.

KANAWHA

Slides on C. & O. and Decoration Day Cut Down Output—Shipments to Tide Decrease, and More Coal Goes to Lakes.

Slips and slides on the Chesapeake & Ohio R.R. at the end of the first week of June played havoc with production in the Kanawha field, as it was impossible to furnish any mines with cars on Saturday or to move any coal in the area affected.

Not only was traffic completely blocked on the main line of the C. & O. but branch lines were also affected so that production was seriously affected in the Cabin Creek area and in the Logan area. Between a holiday partly observed on May 31—Decoration Day—and the slides already mentioned it was an extremely poor production week in the Kanawha field.

Tidewater shipments were not quite so heavy as they had been in previous weeks, but on the other hand there was an increase from some mines at least in the amount of coal being shipped to the Lakes, the percentage of Lake shipments being estimated at 23 or 24 per cent. General western shipments, however, were slightly retarded by embargoes applying to consignments to certain Western markets.

What further cut down the equipment for use at mines shipping commercial coal was the large number of cars being assigned for railroad-fuel loading, the assigned-car practice in the Kanawha region as well as in other regions having become extremely pernicious in the opinion of operators.

Middle Western

SOUTHERN ILLINOIS FIELD

Jefferson County Men Are Drilling for Coal—Franklin County Operators Are Erecting Houses—I. C. Strike Affects Franklin County Fields.

Drilling for coal in a field that has never been prospected is now in progress in Jefferson County. The hole is being sunk a few miles west of Mt. Vernon, and the prospecting is being done on land under lease to local parties. The sale of the field is assured should the seam prove to be thick enough to pay for mining. A good seam of coal has been found in the extreme southern edge of this county, but the test hole there was the first ever sunk in the vicinity of the Mt. Vernon operations.

The Bell & Zoller Mining Co. is erecting a large number of houses at Zeigler, in Franklin County, to take care of the increasing number of miners needed by the rapid development of the No. 2 shaft of this company. Other large operators in the Franklin County field are considering this method of providing homes for their men, as local parties are not inclined to invest money in rental property under the present excessive cost of construction.

The strike of the Illinois Central R.R. switchmen at Duquoin, Carbondale and Centralia, who came out the second time recently, has resulted in shutting down many mines in that section, and has affected the already serious car shortage in the Franklin County fields. The repair men and clerks have also joined the switchmen and the walkout is seriously affecting all mines depending on the Illinois Central for a car supply.

The Lewis mine at Pinckneyville, in Perry County, property of the Hale Coal Co., was destroyed by fire of unknown origin recently. The tipple and superstructure were a total loss. This property was recently remodeled and improved, and was the main source of supply for local dealers. It is undecided at this time whether the property will be rebuilt.

SENTIMENT OF ST. LOUIS COAL MEN

Frelinghuysen Bill Is Discussed—Members Are Opposed to It as Outlined—Straw Vote Is Taken.

As to how the coal men in the Middle West feel in connection with the seasonal rates on coal, as proposed by the Frelinghuysen bill, was evidenced at the last meeting of the St. Louis Coal Club, when a straw vote was taken to ascertain the sentiment.

Only one member of all those in attendance at the meeting was in favor of the bill as proposed.

Many of the members were of the opinion that something along those lines might be worked out to advantage, but not as outlined in that bill. It was the opinion of those present, as taken in the straw vote, that the railroads and the distribution of coal should be let alone and not interfered with by the Government until the railroads and the coal men were unable to properly conduct their own business. This bill was favorably reported by the sub-committee of the Senate Interstate Commerce Committee.

Important Events of the Coal Industry During May

[The bracketed figures in the text refer to the number and the page of the volume in which references to the matter may be found and should the reader desire further information he can obtain it in the place indicated].

May 4—A wage-scale agreement is reached at Cleveland, Ohio, between the scale committees representing the operators and miners of the eastern Ohio field [XVII, 1017]—Freight-train crews on the Morgantown & Kingwood R.R., a coal carrier in northern West Virginia, go on strike demanding an 8-hr. day [XVII, 1058].

May 5—At a meeting of the Senate Frelinghuysen sub-committee, Middle-West consumers support seasonal freight rates [XVII, 1000]—Illinois coal operators who were indicted at Indianapolis a few weeks ago, for violating the Lever Act, bring individual suit in Chicago, asking that the U. S. Government be restrained from prosecuting them further [XVII, 1001].

May 7—Operators and miners meet at Fairmont, W. Va., to consider scales for deadwork in northern W. Va. [XVII, 1059].

May 8—President Wilson issues an order directing the Council of National Defense to take over the records of the War Labor Board and complete any unfinished business [XVII, 1037].

May 12—The sub-committee of the Senate Interstate Commerce Committee favorably reports the Frelinghuysen bill to establish seasonal coal transportation rates [XVII, 1042].

May 13—The sub-committee of the Senate Interstate Commerce Committee reports favorably the Poindexter anti-strike bill for railroads [XVII, 1042].

May 19—Miners at plant of Consumers' Coal Co., at Downs, Marion County, W. Va., strike following discharge of three miners for loading dirty coal [XVII, 1169].

May 20—Interstate Commerce Commission issues orders to relieve freight congestion. Of special importance is the order relating to the relocation of open top cars from western to eastern territory [XVII, 1116].

May 21—U. S. Senate passes the House Merchant Marine bill [XVII, 1165].

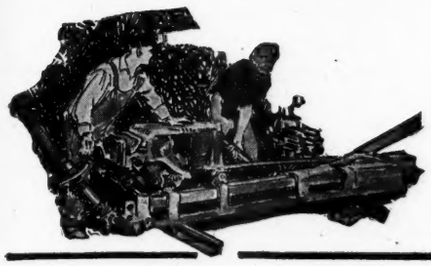
May 22—President Wilson issues ultimatum to anthracite operators and miners forbidding strike in anthracite mines. He will appoint a commission to consider a wage increase if necessary [XVII, 1116]—A wage agreement is concluded at Cheyenne, Wyo., between the mine operators and mine workers [XVII, 1169].

May 24—Matewan men implicated in connection with death of Baldwin-Felts detectives and others are arrested [XVII, 1170]—Director General of Railroads makes public a report of the financing of the U. S. Railroad Administration. History of the financing of the railroads is given from the beginning of Federal control on Jan. 1, 1918 [XVII, 1150]—Miners employed by the Vandalia Coal Co., at Terre Haute, Ind., strike because the company assessed and collected from them a fine of $1 each for failing to report for work Saturday May 15 [XVII, 1215].

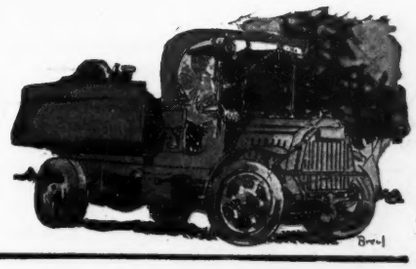
May 25-27—National Coal Association holds its annual meeting at Atlantic City, N. J. [XVII, 1161-1164]—Joint convention of district No. 11, strip mine operators and miners of Indiana, adjourns. Most of workers' demands granted [XVII, 1166].

May 26—Judge A. B. Anderson, of the Indiana District Federal Court, overrules demurrer of Charles E. Hughes to quash indictment in case of 57 bituminous operators and miners, declaring Section 9 of Lever Act constitutional [XVII, 1166]—Seven men said to be union organizers are arrested on Pond Creek Pike County, Ky. [XVII, 1215].

May 27—Officials of United Mine Workers of America request the operators of the Williamson, W. Va., field to negotiate with them regarding the organization of the Williamson field [XVII, 1216]—Mine workers at tri-district convention in Wilkes-Barre, Pa., accept President Wilson's offer to appoint an arbitration committee to settle the anthracite wage dispute [XVII, 1170].



Mine and Company News



ALABAMA

Gadsden—W. L. Smith, of Gadsden, and associates, are understood to be arranging plans for the development of a coal mine in the vicinity of Boaz, Ala. Modern machinery and equipment will be installed, and electric power will be utilized wherever feasible. The plans include the construction of a large number of homes for miners' dwellings.

Birmingham—The remaining block of 60 Semet-Solvay ovens at the plant of the Sloss-Sheffield Steel & Iron Co. has been charged and is now producing coke and byproducts. The 120 ovens at this plant will provide sufficient coke for the separation of all the furnaces of the company, consuming 2,500 tons of coal per day; the plant will displace about 1,500 beehive ovens located at the different coal mines of the company in this district. The oven plant will also generate electric power for the equipment at all the coal and ore mines of the Sloss-Sheffield company, transmission lines now being strung and machinery placed at all its operations in the district to supplant steam power.

ILLINOIS

Chicago—Contract for the new steel tipple for the Jackson Coal Co., at Hallidayboro—the old structure of which was reecntly destroyed by fire—was placed with the Roberts & Schaefer Co., of Chicago, who has already erected a steel head frame and temporary weigh box and screens.

This piece of reconstruction work has been one of the fast jobs of the State. The new tipple when fully completed will be equipped with Marcus screens and shaker loading booms, and will be one of the fine installations of the State.

INDIANA

Indianapolis—The Globe Coal Mining Co., operating at Rogers, six miles east of Petersburg, Ind., is building a railroad switch half a mile long in order to get into its coal property. The company also is constructing what is said to be one of the largest coal mines in southern Indiana. Two stripping machines are being used to move earth away from the railroad right-of-way.

The Gladstone Coal Co., near Petersburg, Ind., is installing electric haulage and power, which will increase the daily capacity of the mine from 400 tons to 1,500 tons.

Officials of the Wulfman Coal Co., operating near Winslow, Ind., have been given the right to build a steam tramway through the eastern part of the town to connect with the Southern Ry.

KENTUCKY

Manchester—The Cumberland & Manchester R. R. Co., which is operating a line tapping rich coal fields, has increased its capital from $50,000 to $500,000, and plans eventually to construct several spurs.

Louisville—Among the new coal companies formed recently in Kentucky are the following: The Jacks Creek Coal Co., of Prestonburg, with a capital of $200,000, has been incorporated by, A. J. Johnson, James Sailsbury and J. W. Shober. The Porter Mining Co., of Ashland, with a capital of $150,000 has been incorporated by, S. S. Porter, J. E. Long, Fred Blackburn, and Dr. M. M. Collins. The Apex Coal Co., of Whitesburg, of which R. F. Haskins, of the Diamond Block Coal Co., near Hazard, Ky., is the head, is planning to install a plant with a daily capacity of 500 tons, on the Craft property near Millstone, Ky., in the Elkhorn field.

Lynch—Converting a mountain wilderness of Kentucky into a thriving and modern mining town in less than three years was the achievement of the United States Coal & Coke Company here, a subsidiary of the United States Steel Corporation.

Some 18,000 acres of coal lands were purchased by the company and on Sept. 1, 1917, the first workmen arrived to lay out the town and open the mines. The company built its own railroad out of Benham.

One of the features of the operation is that the mines are electrically lighted.

The projects planned by the company include two miles of concrete streets from the Benham line to the upper end of Lynch. Macadamized roads will be built in the town, fences constructed around the houses, sewerage installed, and a large grammar school and bank built. A hospital has been recently built for the benefit of the 7,000 or 8,000 employees of the company.

It is estimated that there are about 500,000,000 tons of coal to be worked here. The capacity of the plant is 2,500,000 tons of coal a year.

PENNSYLVANIA

Pittston—William P. Jennings, superintendent of the Pittston division of the Pennsylvania Coal Co., recently appeared before members of the Mine Cave Bureau of Pittston and assured that organization that the company will not only repair all damage occasioned by recent surface subsidence in upper Pittston, but will see that no further damage is done streets of the city and will likewise file maps of its underground workings as required by a city ordinance.

A warrant was issued under Section 6 of the Davis act of 1913, which makes it unlawful for any person or corporation engaged in the mining of coal to damage streets or public thoroughfares by surface subsidences through failure to leave adequate supports.

Conviction under the act calls for a fine of $1,000 or a maximum sentence of 90 days in the county jail or both at the discretion of the committing magistrate.

The cave which resulted in the issuing of the warrant occurred recently in the Curtis Street slope of the No. 9 colliery of the Pennsylvania company and damaged Wilford Street.

Three months ago the Scranton-Pittston Coal Co. was brought into the Luzerne County Court for failure to file maps. The court held that the ordinance was legal and directed the company to comply. To date the company has not filed its maps and as a result operations have been suspended.

Wilkes - Barre — Extensive improvements are now under way by the Susquehanna Collieries Co., including sinking new shafts at the Richards and the Pennsylvania colleries, the construction of a large new breaker to prepare coal from both operations and the erection of a new power plant. The breaker, which will be of steel construction, will have a capacity of 3,000 tons of clean coal a day and will replace the breakers at the Pennsylvania and Richards collieries. The power house will have a boiler capacity of 12,000 hp. and an electrical capacity of 9,000 kw. The transmission line will be double and will have a total length of 40,000 ft.

Uniontown—The sale of 2,600 acres of Greene County coal, for a consideration of almost $3,000,000 to the W. J. Rainey interests by the Youghiogheny & Ohio Coal Co., is reported to have been concluded in Pittsburgh. The property, located in what is known as the Clarksville tract in the northern section of Greene County, brought $1,180 per acre which is said to be a new high figure for coal lands in that section of Greene County. The tract is located along Ten Mile Creek. The purchase is being made by the W. J. Rainey interests, it is understood, to provide a reserve source of fuel for the byproduct plant of the Rainey-Wood company in the eastern Pennsylvania territory.

Johnstown—The A. B. Crichton Coal Co. is understood to have completed negotiations for the acquirement of the holdings and property of the Chaffee Coal Co., in the Upper Potomac field, located in the vicinity of Westernport, Md., for a consideration of about $500,000. The property comprises about 2,000 acres of coal lands, and it is understood that the new owner is planning for extensive improvements and enlargements to provide a capacity of about 1,500 tons daily, or more than double the present output.

Mercer—Enoch W. Filer and William Jenkins, who have been operating the Pardoe mines under charter held by the Mercer Mining Co., for the past three years under a lease, have purchased the mines from the Mercer Mining Co. and are planning to make improvements including a new shaft and other developments.

WASHINGTON

Bellingham.—Additional men have been employed by the Bellingham Coal Mines Co. and its output increased to 500 tons. By next fall the daily output is expected to be 700 tons. The market outlook is promising and the company's product is growing in popularity. The company is constructing a car shop and repair house and is building its own mine cars. It is also extending its spur track.

WEST VIRGINIA

Williamson—The Williamson Coal & Coke Co. has been purchased by A. H. Land, J. L. Dickinson and others. The purchase includes all the holdings of the company in the Williamson field and in Kentucky. The consideration involved was approximately $150,000. The present output of the mines of the Williamson company amounts to about 30,000 tons a month. The new owners, however, will probably make a number of improvements with a view to increasing the capacity of the plant.

Morgantown—The Gaston Run Coal Co. has increased its capital from $50,000 to $100,000, for general business expansion. Ernest H. Gilbert is president.

Fairmont—The Tarr Coal Co. is getting ready to make improvements that will increase the production of its mine on the West Fork River between this city and Monongah. The Tarr company operates six mines in Pennsylvania and West Virginia.

Glen White—The E. E. White Coal Co., the largest producer on the Virginian Ry., announces that it expects to sink four shafts in Raleigh and Wyoming counties.

Huntington—Operations on a large scale will be conducted in both West Virginia and Kentucky by the Logan-Elkhorn Coal Corporation. The capitalization of the company has been fixed at $1,500,000. It will operate in Logan County, W. Va., and in Letcher County, Ky. Those principally interested in the new company are: J. K. Parsons and A. R. Parsons, of Mallory, W. Va.; A. F. Parsons and Ettie Parsons of Huntington, W. Va.; W. S. Peters of Seco, Ky.

The Overseas Coal Co., First National Bank Building, has been incorporated with a capital of $50,000 to engage in general coal mining operations in Lincoln, Cabell, Logan and Boone counties. It is understood that machinery and equipment will be installed for active work at an early date. H. K. Marcum and J. W. Tague head the company.

Charleston—Smokeless coal land in Fayette County is to be developed by the Kettle Run Coal Co., with headquarters in this city, the new concern having a capitalization of $150,000. Principally interested in the new company are: T. C. Beury, J. A. Thayer, A. S. Guthrie, E. H. McNeil and John W. Fry, all of Charleston, W. Va.

Three companies to act as selling agencies for Pike County, Ky., coal, and Mingo County, W. Va., coal, have been organized by E. L. Bailey, of Williamson; E. H. Sudduth, of Welch and others. The new corporations are: The Bailey Fuel Co., of Charleston, W. Va., with a capitalization of $100,000; the Sudduth Fuel Co., of Charleston, with a capitalization of $100,000, and the Williamson Fuel Co., of Charleston, with a capitalization of $200,000.

Companies whose capitalization has just been increased are the Ashford Coal & Coke Co., of Charleston (headed by Frank D. Barron), from $25,000 to $50,000; and the Delmar Coal Co., of Fairmont, W. Va. (John T. Phillips, president), from $300,000 to $1,000,000.

Association Activities

Western Coal Operators' Association

In order to better co-ordinate the coal-mining industry in the Province of Alberta, Canada, from the viewpoint of the operators, an amalgamation has been effected which will bring under the jurisdiction of the Western Coal Operators' Association, six sub-district organizations, including the Red Deer Valley Coal Operators' Association.

While each sub-district will deal with questions inside its own association, all matters of policy will be referred to the Western Coal Operators' Association. The officials of the new organization are: President, O. S. Whiteside; first vice president, Jesse Gouge; second vice president, John Shanks; secretary-treasurer, W. R. McNeill.

Sewell's Point Tidewater Exchange

Producers and shippers of coal on the Virginian Ry., many of them in the Winding Gulf field of Southern West Virginia, put the finishing touches on the new Sewell's Point Tidewater Exchange on May 28 at Washington, D. C., where a meeting of the shippers was held, G. H. Caperton acting as chairman of the meeting.

Of the entire tonnage originating on the Virginian Ry., 70 per cent of it will hereafter be shipped to Sewell's Point so as to facilitate handling the tonnage. The following board of governors for the new coal exchange was elected: C. H. Mead, S. A. Scott, W. P. Tams, G. H. Caperton, P. M. Snyder, Frank Ellison and J. B. Clifton.

Coal to the exchange at Sewell's Point will be classified as follows: Low-volatile coal from mines on the Navy acceptability list, run-of-mine, Pool 1; other high-grade low-volatile coal, run-of-mine, Pool 2; low-volatile slack, Pool 3; other low-volatile coal, not classified in pools 1 and 2; run-of-mine, Pool 4; high-volatile byproduct, run-of-mine, Pool 7; low volatile, Eagle seam, Pool 8; low-volatile lump, Pool 44.

Logan Coal Operators' Association

The Logan Coal Operators' Association, at a meeting held in Huntington on May 31, arranged to file an appeal with the Interstate Commerce Commission for the early return of coal cars needed in shipping coal to the Lakes.

It was pointed out at the meeting that unless cars, now in the far West and usually utilized in transporting coal to the Lakes, are returned to the Chesapeake & Ohio and to the Hocking Valley, then there will be an unparalleled shortage of coal in the Northwest during the coming winter.

Lake shipments which up to this time should be 7,000,000 tons, have only reached the 1,000,000-ton mark thus far, although it is estimated that the Northwest will need 30,000,000 tons to meet requirements. While the Chesapeake & Ohio and the Hocking Valley are prepared to handle Lake coal expeditiously, refusal of connecting lines to return empties has greatly limited such shipments.

During the last week of May only 24 per cent of the tonnage of the Logan field was shipped to the lakes, and it is estimated that if the relief asked for is given by the Interstate Commerce Commission, then it will be possible to increase Lake shipments to 50 per cent of the region's output.

West Virginia Coal Operators' Association

Suit of the Northern West Virginia Coal Operators' Association against certain railroads in northern West Virginia, including the Pennsylvania, Pittsburgh & Lake Erie, Monongahela and Morgantown & Wheeling railroads, was planned to be heard by the Interstate Commerce Commission on June 11, owing to the inability of the railroads named to have their evidence ready before that time. The case was to have been heard on May 28. It was brought by the operators to require the carriers named to furnish a sufficient number of cars to overcome a deficit of about 16,000 cars covering a period of a year.